The Dissertation Committee for Feng-yu Lee certifies that this is the approved version of the following dissertation:

Political Institutions, Contexts, and Ethnic Conflict in Comparative Perspectives

Committee:

_____

Tse-min Lin, Supervisor

_____

Robert Moser, Supervisor

_____

Gary Freeman

_____

Raul Madrid

_____

Daniel Powers

Political Institutions, Contexts, and Ethnic Conflict in Comparative Perspectives

by

Feng-yu Lee, B. A.; M.A.

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Political Institutions, Contexts, and Ethnic Conflict

in Comparative Perspectives

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Since the 1990s, ethnic divisions have replaced the cold war as the world's most important source of violent conflict (Lijphart 2002). According to Fearon and Laitin (2003), a conservative estimate of the total dead between 1945 and 1999 is 16.2 million, five times the interstate toll, as a direct result of about 127 civil wars that each killed at least 1,000. The problem of ethnic tensions is so widespread and serious that it has presented a major impediment to further democratization in this century and has possibly caused a third reverse wave of democratization (Lijphart 2002).

Are ethnic tensions and conflicts inevitable in heterogeneous states? Which governmental institutions (parliamentary or presidential) and electoral systems (PR or SMD) create the best framework for addressing ethnic conflict? Is there any one-size-fits-all institutional solution to ethnic conflict? This dissertation aims at answering these urgent but under-explored questions, especially the last two about the effects of institutional arrangements. This dissertation will hold out institutional prescriptions that meet the needs of specific divided societies through a large-N quantitative study covering all ethnic groups in Minorities at Risk dataset from 1985 to 2003.

Table of Contents

List of Tables

List of Figures

Chapter 1: The Overlooked Interactive Effects of Contexts and Political Institutions

Since the 1990s, ethnic divisions have replaced the cold war as the world's most serious source of violent conflict (Lijphart 2002). "Communal conflict has devastated Yugoslavia and threatens the stability of most of the successor republics of the Soviet Union. The most protracted conflicts of the century are being fought over ethnonational issues in the Middle East and in Southeast Asia…. Virtually every country in Western Europe is beset by growing public antagonism toward immigrant groups of Third World origin" (Gurr 1993: 314). According to Fearon and Laitin (2003), a conservative estimate of the total dead between 1945 and 1999 is 16.2 million, five times the interstate toll, as a direct result of about 127 civil wars that each killed at least 1,000.[1] The problem of ethnic tensions is so widespread and serious that it has presented a major impediment to further democratization in this century and has possibly caused a third reverse wave of democratization (Lijphart 2002).

Are ethnic tensions and conflicts inevitable in heterogeneous states? Which governmental institutions (parliamentary or non-parliamentary) and electoral systems (proportional or non-proportional) create the best framework for addressing ethnic conflict? Is there any one-size-fits-all institutional solution to ethnic conflict? This dissertation aims at answering these urgent but under-explored questions, especially the last two about the effects of institutional arrangements. Many scholars would blame mostly the inability of constitutional designers to deal with ethnic conflicts if these conflicts have really caused a third reverse wave of democratization (Lijphart 2002). This

[1] Although Fearon and Laitin (2003) refute the direct effect of ethnic diversity on civil war, they acknowledge that ethnic diversity may have indirect impact.

dissertation will hold out institutional prescriptions that best meet the needs of specific ethnic societies.

In the following sections, I first examine the individual effects of the number and spatial distribution of ethnic groups, government structures, and electoral systems on the severity of ethnic conflict.[2] I then provide preliminary evidence about the importance of the interaction between these factors, and introduce briefly the theories of this dissertation. I conclude this chapter with the sections on research methods and the plan of this dissertation.

Before proceeding to the next section, it should be noted that the subjects of this research include both violent and nonviolent ethnic conflicts that pit ethnic minorities against states during 1985-2003.[3] I argue in Chapter 3 that institutions should have similar but stronger effects on violent conflicts than on nonviolent conflicts. For the purpose of concentrated discussion, only the link between institutions and violent conflicts is examined in this chapter. The Minorities at Risk (MAR) dataset that I will analyze in this dissertation includes ethnic groups that collectively suffer, or benefit, from systematic discriminatory treatment vis-à-vis other groups in a state, and/ or make claims on behalf of and undertake political action to defend and promote their collective interest. In Chapter 4, I will detail the scholarly definitions of ethnicity.

1.1 The Impact of Ethnic Diversity

Ever since the collapse of the Soviet Union and Yugoslavia, many more scholars

[2] I do not investigate the links between these independent variables and the occurrence of ethnic confict in this chapter, because these explanatory variables have similar effects on the occurrence and severity of ethnic conflict. Chapter 7 will present both these estimates in a multiple regression context.
[3] I do not focus on group-to-group conflicts because there are many missing values in this variable of the MAR dataset.

have traced rebellion, which can quickly undermine democracy (Fish and Brooks 2004), to ethnic nationalism (Fearon and Laitin 2003). Empirical evidence about the detrimental impact of serious ethnic divisions is abundant. For example, Horowitz (1993) observes that democracy has developed furthest in some East European countries which have fewest severe ethnic cleavages (Hungary, the Czech Republic, and Poland) and progressed more gradually or not at all in others which are deeply divided (Slovakia, Bulgaria, Romania, and of course the former Yugoslavia). Fish and Brooks (2004) indicate that the course of regime change and the performance of democracy in Asia and Latin America are smoother and better in more homogeneous states. Other scholars have different views, however. For example, Horowitz (1985) and several others claim that the link between ethnic fractionalization and severe ethnic conflict is nonlinear, with less violence for highly homogeneous and highly heterogeneous countries. Put differently, the most severe ethnic conflicts occur in countries in which there exists a substantial minority group facing an ethnic majority.

Does the presence of two major ethnic groups or that of more than two groups lead to more severe ethnic conflict?[4] With an 8-point scale, "anti-regime rebellion" from the MAR dataset is generally regarded as an interval-scale variable. Given this classification, a mean comparison can be done. According to the test result displayed in Table 1.1, typical countries with multiple ethnic groups experienced more severe anti-regime rebellion during 1985-2003 than typical countries that have only two ethnic groups. The average conflict level of more diverse countries was almost twice that of less diverse countries (rebellion=0.92 and 0.50, respectively). This difference is significant at the 95%

[4] I have used the ethnic fractionalization index of Alesina and his colleagues (2002) to divide countries into two categories to represent more and less diverse countries, respectively, i.e. countries having multiple groups and countries having only two groups. Specifically, the effective number of ethnic groups equals two when a fractionalization score is smaller or equal to 0.61. Please refer to Chapter 4 for details.

Table 1.1: The Average Levels and the Ranges of Rebellion
in Countries Having Two and Multiple Groups during 1985-2003

	N	Mean	Standard Deviation	Min.	Median	3rd Quartile	Max.
Multiple Groups	68	0.92	1.57	0.00	0.00	1.00	7.00
Two Groups	104	0.50	1.22	0.00	0.00	0.20	5.84
Mean Comparison: H_0: Multiple<=Two t=1.98 p=0.02							

Source of the rebellion data: Minorities at Risk dataset 1985-2003.
Notes: Minority groups in divided democracies constitute the unit of analysis. I classify countries as democracies if they receive a Polity IV score of at least 6. Rebellion is an 8-point-scale variable, with 0 indicating no conflict, and higher values representing more serious conflict. Min. and Max. are the abbreviations for minimum and maximum, respectively.

confidence level (p=0.02). The variable of rebellion does not have a normal distribution, however. This distribution suggests that comparing medians, instead of comparing means, may be more appropriate. Both the comparisons will be presented in the following tables. Readers can decide which results to focus on.

While the mean comparison shows that more diverse societies experienced more severe conflict than less diverse societies on average, the median comparison indicates that the typical states of both categories never experienced ethnic conflict. Regardless, severe conflict happened in some of both types of states, as the maximum level of rebellion shows. Why were some divided societies associated with a lower risk of more intense rebellion and others with a higher risk, regardless of the degrees of ethnic diversity of these societies? This dissertation provides contextual and institutional explanations. More diverse societies do not necessarily mean more or less severe conflict. Furthermore, within both types of societies, there are variations in terms of the severity of ethnic conflict. The combined impact of the spatial distribution of ethnic groups,

Table 1.2: The Average Levels and the Ranges of Rebellion
of Concentrated and Dispersed Groups during 1985-2003

	N	Mean	Standard Deviation	Min.	Median	3rd Quartile	Max.
Concentrated Groups	119	0.91	1.58	0.00	0.00	1.00	7.00
Dispersed Groups	53	0.13	0.41	0.00	0.00	0.00	2.18
Mean Comparison: H_0: Concentrated<=Dispersed t=3.52 p=0.00							

government structures, and electoral systems helps explain these variations both within and between societies with different effective numbers of ethnic groups.

1.2 The Impact of Ethnic Spatial Distributions

Spatially dispersed ethnic groups are generally believed to be less combative than spatially concentrated ethnic groups (Gurr 1993; Byman 1997; Ayres and Saideman 2000; Saideman and Ayres 2001; Toft 2003). Dispersed groups have no legitimacy, motivation, or capability to claim control of the land they currently occupy, so such groups are essentially more peaceful. Table 1.2 provides supportive empirical evidence.

According to Table 1.2, the average rebellion level of concentrated groups was seven times that of dispersed groups (rebellion=0.91 and 0.13, respectively). The difference is significant at the 99% confidence level (p=0.00). Although the median comparison indicates that neither of the groups experienced any ethnic violence on average, some concentrated groups were engaged in a lot more severe rebellion than dispersed groups as the maximum level of rebellion shows (rebellion=7 and 2.18, respectively). The smaller variation and the lower intensity of dispersed groups' conflict activities should result from such groups' inherent tendency to coexist with other ethnic groups more peacefully. But what factors explain why some concentrated groups fought severely against their states

while others did not? This dissertation argues that the combined effects of government structures and electoral systems provide the answer.

1.3 The Impact of Government Structures

Many scholars agree that conflicts are by no means intractable and institutions play important mitigating roles (e.g. Horowitz 1985; Reynolds 2002). However, there have been many debates about which governmental institutions (presidential, parliamentary, and semipresidential) and electoral systems (proportional and non-proportional) create the best framework for addressing ethnic conflict. The most criticized problems associated with presidential systems include their tendency to foster zero-sum competition, to encourage a winner-take-all outcome, and to promote deadlock between the executive and the legislative branches (Linz 1994; Lijphart 1994, 1999, and 2002). Influenced by these views of Lijphart and Linz, some scholars and countries consider parliamentary systems better levers of conflict management in divided societies than presidential systems. Many important academic and political figures in Taiwan, for example, have been advocating adopting a parliamentary system.[5] Among the 70 states in my dataset, about 27 countries had parliamentary systems during the entire 1985-2003 period.

In contrast, some scholars and countries have paid attention to the potential pitfalls of parliamentary systems. For example, Shugart and Carey (1992) indicate that parliamentary-one-party-cabinet systems can generate more enduring and unchallengeable winners if the same party continuously wins parliamentary elections.

[5] They have had this preference, although some individuals did not explicitly relate their penchant for parliamentary systems to Taiwan's ethnic problem.

Although these two scholars do not discuss the effects of government structures to address the question of conflict management in divided societies,[6] their notion implies one merit of presidential systems on this question, i.e. checks and balances between the executive and the legislative branches, which are separately and popularly elected. Such checks and balances hold to some extent even when the same party (and the same ethnic group) wins elections of both the branches (Saideman et al. 2002). Understanding that both the chief executive and the legislative assembly of presidential systems have a fixed and independent electoral mandate, which makes it possible that control of parliament by a single ethnic group would not be sufficient to exclude the rest, Nigeria chose this system in 1978 (Horowitz 2002).

The effect of semi-presidential systems has been under-explored in the discipline. I argue in Chapter 3 that such systems have an impact similar to that of presidential systems. I therefore use the term "presidential systems" in this dissertation to denote both presidential and semi-presidential systems. Among the 70 states in my dataset, about 40 countries used presidential systems during the entirety of 1985-2003. What do we make of these divergent views about the impact of government structures and the different choices among ethnically divided societies? There are more divided societies in my dataset using presidential systems, but are such systems more propitious in conflict management?

The mean comparison reported in Table 1.3 shows that on average, presidential systems outperformed parliamentary systems in reducing the intensity of rebellion during 1985-2003. Specifically, the average conflict level in parliamentary systems was almost

[6] Most literature on governmental structures does not address this question. Lijphart's and Linz's works are exceptions (Belmont et al. 2002).

Table 1.3: The Average Levels and the Ranges of Rebellion
in Parliamentary and presidential Systems during 1985-2003

	N	Mean	Standard Deviation	Min.	Median	3rd Quartile	Max.
Parliamentary	68	0.91	1.60	0.00	0.00	1.00	7.00
Presidential	98	0.50	1.21	0.00	0.00	0.40	5.80
Mean Comparison: H_0: Parliamentary<=Presidential t=1.89 p=0.03							

twice that in presidential systems (rebellion=0.91 and 0.50, respectively). The difference is significant at the 95% confidence level (p=0.03).

The median comparison indicates that parliamentary systems did not differ significantly from presidential systems in managing ethnic conflict, however.
The interquartile range (IQR), i.e. the difference between the first and the third quartiles, shows that the intensity of ethnic violence had wider variations among parliamentary than among presidential systems (IQR=1.0 and 0.4, respectively). Put differently, the levels of ethnic conflict were more different among parliamentary than among presidential systems. Furthermore, some parliamentary systems experienced the most intense ethnic violence, i.e. rebellion=7, but the most serious rebellion happened in presidential systems is also quite intense, i.e. rebellion=5.8. These facts suggest that some parliamentary systems were indeed less propitious, but others may be preferable to presidential systems. This dissertation introduces both institutional and contextual conditions that explain when specific government structures are conducive to peaceful ethnic relations and when they are not.

1.4 The Impact of Electoral Systems

There have also been numerous debates about how successfully different electoral

Table 1.4: The Average Levels and the Ranges of Rebellion
in PR and SMD Systems during 1985-2003

	N	Mean	Standard Deviation	Min.	Median	3rd Quartile	Max.
SMD	76	0.96	1.67	0.00	0.00	1.20	7.00
PR	73	0.46	1.14	0.00	0.00	0.37	5.84
Mean Comparison: H_0: SMD<=PR t=2.14 p=0.02							

systems manage ethnic conflict. Proportional representation (PR) systems generally have higher proportionality of votes to seats and hence are widely believed to better facilitate minority representation and minority support for the political system (Lijphart 2002; Norris 2002). Other scholars like better preferential electoral systems, such as Alternative Vote (AV) and Single Transferable (STV) systems (Horowitz 1991), in the belief that they promote rival elites' incentives to compromise. Only three countries in my dataset used these electoral systems during 1985-2003, suggesting that only a few divided societies appreciated such systems. But do PR systems better handle ethnic tensions than non-PR systems?

Table 1.4 provides supportive evidence if we compare the mean levels of rebellion in countries using PR and single-member district (SMD) systems. In this dissertation, the terms "non-PR systems" and "SMD systems" will be used interchangeably. The average rebellion level in countries using non-PR systems was more than twice that in countries using PR systems (rebellion=0.96 and 0.46, respectively). The difference is significant at the 95 confidence level (p=0.02). The median comparison indicates no difference between the two systems' performance, however, meaning that the typical states using both systems did not experience any ethnic conflict.

Furthermore, countries having SMD systems displayed more variations than those

Table 1.5: Mean Levels of Rebellion by the Numbers and Spatial Distributions of Ethnic Groups and Political Institutions

Type	Spatial Distributions[7]	Group Numbers	Governmental Structures	Electoral Systems	Mean of Rebellion
1	Concentrated	Two	Parliamentary	PR	1.18 (7)
2	Concentrated	Two	Presidential	PR	0.40 (19)
3	Concentrated	Two	Parliamentary	SMD	1.13 (4)
4	Concentrated	Two	Presidential	SMD	0.91 (21)
5	Concentrated	Multiple	Parliamentary	PR	0.25 (4)
6	Concentrated	Multiple	Presidential	PR	0.74 (15)
7	Concentrated	Multiple	Parliamentary	SMD	2.42 (16)
8	Concentrated	Multiple	Presidential	SMD	0.40 (14)
9	Dispersed	Two	Parliamentary	PR	0.00 (5)
10	Dispersed	Two	Presidential	PR	0.09 (12)
11	Dispersed	Two	Parliamentary	SMD	0.22 (11)
12	Dispersed	Two	Presidential	SMD	0.02 (5)
13	Dispersed	Multiple	Parliamentary	PR	0.03 (3)
14	Dispersed	Multiple	Presidential	PR	0.00 (2)
15	Dispersed	Multiple	Parliamentary	SMD	0.54 (5)

Note: Minority groups in divided democracies constitute the unit of analysis. I use Alesina and his associates' index of ethnic fractionalization to derive the effective numbers of ethnic groups. Numbers of cases are in parentheses.

having PR systems in terms of the intensity of ethnic violence (IQR=1.2 & 0.37, respectively). Moreover, although some countries using SMD systems experienced the most intense ethnic violence, i.e. rebellion=7, some states adopting PR systems also experienced quite severe ethnic conflict, i.e. rebellion=5.84. These two facts suggest that sometimes, but not all the time, PR systems outperformed SMD systems. This dissertation stresses the need to examine under which conditions PR systems become preferable.

[7] "Spatial distributions" is a group-level variable. All the others are state-level variables.

The most important lesson learned from this discussion is that the effects of the number and spatial distribution of ethnic groups, governmental structures, and electoral systems display a wide range of variations. This empirical pattern is in accordance with the expectation of this dissertation: Only after we take all the other three factors seriously can the impact of any of these four variables be accurately understood.

1.5 The Interactive Effects of the Contexts and Political Institutions

This section provides preliminary evidence about the importance of the interaction between the institutional and contextual factors. Table 1.5 presents the mean levels of rebellion by the number and spatial distribution of ethnic groups, government structures, and electoral systems. Because all these variables have two categories, there are 16 possible combinations. One combination does not have any observation, so only 15 combinations are displayed in Table 1.5.

The mean comparison reported in Table 1.1 with regard to the effect of the number of ethnic groups shows that typical states having multiple groups experienced more severe ethnic conflict than typical states having only two groups. Table 1.5 does not provide similar findings. Controlling for the spatial distribution of ethnic groups, it is found that only one type of country with multiple groups— i.e. those using parliamentary-SMD systems (Types 7 & 15)— experienced more intense rebellion on average than countries having two groups. The result of Table 1.1 is obviously biased by this single type of country. All the other more diverse countries had more harmonious ethnic relations than less diverse countries. Furthermore, if government structures and electoral systems are also held constant, no consistent pattern about the effect of group numbers exists, as the comparisons between Type 1 vs. Type 5 and Type 2 vs. Type 6

indicate. These mixed patterns result from the fact that different institutions favor minorities' policy influence in different contexts. For example, the existence of multiple groups in parliamentary-PR systems favors the formation of a coalition cabinet, which better ensures for all the ethnic groups in a state a certain sense of security, be they a member of the coalition or not.[8] It is thus not surprising to find that, in cases involving a concentrated ethnic group living in parliamentary-PR systems, rebellion is less intense in countries having more than two ethnic groups (Type 5) than in those with only two groups (Type 1). This example demonstrates well the need to take the interactive effects of the contextual and institutional factors seriously in order to better understand the impact of ethnic diversity on ethnic conflict.

In respect of the effect of the spatial distribution of ethnic groups, Table 1.2 shows that the average rebellion level of concentrated groups is seven times higher than that of dispersed groups. The higher combative motivation and fighting capability of concentrated groups have been generally proved by Table 1.5 as well. There were exceptions, however. For example, typical concentrated groups in Types 2, 5, and 8 were equally or less combative than dispersed groups in Type 15 between 1985 and 2003. I argue in Chapter 3 that the institutions of Types 2, 5, and 8 provided the concentrated groups in question the highest sum of probabilities to influence policy-making, so these groups became less combative. After taking the combined effects of the institutional and contextual factors into consideration, these three types were not exceptions anymore.

Similar points can be made about the effects of government structures and electoral systems. Table 1.3 and Table 1.4 indicate that presidential and PR systems better prevent severe ethnic conflict. Table 1.5 provides a more complicated picture. For example,

[8] Please refer to Chapter 3 for details.

parliamentary systems performed quite differently in Types 1and 5, in accordance with the expectation of this dissertation that appropriate government structures are ultimately contextual and rest on the nuances of the number of ethnic groups in a country. PR systems also had different performance in, say, Types 1, 2, and 5, suggesting the interaction between electoral systems, government structures and the numbers of ethnic groups makes a difference. Furthermore, a common but untested view suggests that the combination of parliamentary and proportional representation (PR) systems best manages ethnic conflict. This view does not stand up to the preliminary empirical investigation. Holding the number and the spatial distribution of ethnic groups constant, this institutional combination guarantees the least severe ethnic conflict in some but not other contexts during 1985-2003. In the remaining chapters, I will discuss which institutions best meet the needs of specific divided societies, and provide more systematic empirical evidence.

To explain how the interactions between the institutions and the contexts in question affect ethnic conflicts, Chapter 3 introduces the theories of this dissertation. The theories about the effects of political institutions and ethnic diversity place the sum of probabilities for ethnic minorities to influence policy-making at the center of a general explanation of why some ethnic conflicts are more severe than others.[9]

Appropriate institutional configurations are those that maximize such probabilities in a specific context. For example, for concentrated minority groups facing only one opposition group, ceteris paribus, presidential-PR systems outperform other institutions in

[9] Violent conflicts are costly, but there are several obstacles to a rational settlement of disputes short of violence (Toft 2003), such as (1) private information obstacles (parties to a dispute tend to conceal their true aims and goals, as well as the costs and risks they are willing to take to reach their goals); (2) a commitment problem (ethnic minorities often find it difficult to trust stronger groups' commitment to an agreement); and (3) the problem of an indivisible issue, such as homeland territory and, to some extent, political institutions.

providing them more influences in policy making. Fairer PR systems help reduce the likelihood of conflict engaged in by such groups while presidential systems help prevent dominant groups from gaining total control of power, and, hence, reduce the conflict propensity of dominated groups in question. I will discuss the effects of institutional configurations in other types of contexts in Chapter 3. It should be noted that although the units of analysis in this dissertation are ethnic *groups* within a democratic state for a given year, my findings provide implications for the institutional engineering of ethnically divided *societies*. According to my theory, institutions either do not matter for dispersed groups' conflict propensities (since such groups are essentially more peaceful) or have similar effects on both concentrated and dispersed groups' tendency toward conflict. Divided societies can thus design institutions based on only the needs of concentrated ethnic groups, regardless of whether institutions influence dispersed groups' conflict propensities.

Whether states with two groups or with more than two groups experience more intense conflicts is determined by whether minority groups of these societies have been largely prevented from having influence in policy-making in a specific institutional arrangement. The aforementioned comparison between Type 1 and Type 5 provides a good example of this theory. In Chapter 3, I will discuss the effects of group numbers on ethnic conflict when different institutions are in use.

To investigate the impact of ethnic groups' spatial distributions on ethnic conflict requires controlling for the effects of political systems. Ethnic diversity does not matter in this investigation, and one example explains why. When parliamentary-PR systems are used, concentrated groups are likely to be associated with a higher probability of violent conflict than dispersed groups. This likelihood remains unchanged even when these

concentrated and dispersed groups live in more diverse and less and less diverse countries, respectively. More diverse countries better promote ethnic power sharing than less diverse countries when parliamentary-PR systems are used, as aforementioned. An uneven distribution of power between dominant and minority groups is more likely to persist in both types of societies, however. Given this condition, capable concentrated groups living in more empowering countries are still more likely to fight for fairer treatments than less capable dispersed groups living in less empowering countries. In sum, given a certain political system, capable concentrated groups are more likely to rebel and intensely clash with states than dispersed groups regardless of how many ethnic others these groups face.

1.6 Research Methods

In this dissertation, I will perform statistical analysis to test my interactive hypotheses. Because one central theme of this dissertation is about the combined effects of government structures and electoral systems given certain contexts, my study focuses only on democracies in the assumption that political institutions function differently in democracies and non-democracies. The Minorities at Risk dataset, which provide this dissertation the dependent and some control variables, classified 172 ethnic groups in 70 democratic states during 1985-2003. The number of observations may vary from model to model because of different model specifications and the exclusion of some cases from analysis for robustness check. The MAR dataset has several desirable features (Toft 2003), such as its inclusion of both the presence and absence of violent and nonviolent political activity and its specification of several levels of group conflict against states. The second feature is especially advantageous to this dissertation because that allows me

to study both the occurrence and severity of ethnic conflicts. I will do so in Chapter 7.

A key methodological contribution of this dissertation is to do large-N, quantitative analysis as appropriately as possible. Large-N studies help provide generalizable knowledge, and are desirable given that in a regression context, the small number of observations in some types of societies will not constitute a particular concern.[10] Large-N studies have rarely been done to investigate the link between political institutions and ethnic conflicts, however. Worse is the fact that existing quantitative studies usually do not let their theories direct their model specifications, as I discuss in the end of Chapter 2. Another methodological contribution of this research is to take very seriously the problems associated with any time-series cross-section analysis. I explain in Chapter 4 why a between-effects model serves as a better model than the dominant Beck and Katz's approach for any study using the MAR dataset to investigate the sources of anti-regime ethnic conflicts (especially of violent rebellion). I also introduce a new model, a zero-inflated ordered probit (ZIOP) model, to deal with the problem of too many groups experiencing no conflicts in the MAR dataset. When analyzing datasets having such data structures and having an essentially ordinal scale variable, a ZIOP model better achieves unbiased and consistent estimates.

1.7 Plan of this Dissertation

The commonly acknowledged sources of ethnic conflict are critically reviewed in Chapter 2. I then discuss how previous research evaluated the effects of government structures and electoral systems. I indicate that there are only a few gnenralizable analyses, which omit the very crucial interactive term of the two institutions in question

[10] Please refer to Appendix C for the number of observations in each type of society (i.e. Types 1-15).

and, hence, make their findings highly dubious. I bring in the insights learned from contextual studies of groups' settlement patterns and group numbers to highlight the importance of the contexts when designing institutions to ameliorate ethnic conflict in specific ethnically divided societies. This chapter ends with a section on the frequently encountered methodological issues when modeling interactive effects and analyzing time-series cross-section datasets, together with an examination about how existing literature dealt with these problems.

In Chapter 3, I first discuss the implication of the theory of the ethnic security dilemma, in comparison with that of Lijphart's and Tsebelis' models of consensus democracy and veto player, respectively, about which types of institutions better solve the detrimental consequences resulting from the predicament. Building on the implication of the theory of the ethnic security dilemma, I rank each combination of government structures and electoral systems in order of their levels of power sharing. I then discuss how the number and spatial distribution of ethnic groups influence a system's effect on ethnic conflict. I explain whether types of ethnic conflict constitute a factor in the desirability of institutional configurations. I then discuss how institutional configurations in turn affect the effects of the two contextual factors. Hypotheses are derived from these discussions.

In Chapter 4, I first briefly discuss appropriate statistical models based on the data structure of this dissertation and on the results of panel unit roots tests, followed by a section explaining how I measure the effective numbers and spatial distributions of ethnic groups as well as how I encode government structures and electoral systems. I will then introduce control variables and specify my empirical models.

Multivariate statistical tests (with other relevant variables incorporated) of my

hypotheses are laid out in Chapters 5-7. Chapter 5 presents the findings about the effects of government structures and electoral systems. In this chapter, I do a variety of sensitivity tests to ensure the validity of my findings, such as testing whether there is endogeneity between political systems and conflict levels; whether dividing government structures into three categories leads to different findings about the link between political systems and ethnic conflict, and whether excluding homogenous societies from analysis changes my conclusions. Chapter 6 presents the coefficients of ethnic diversity and group distributions. Chapter 7 uses a new model, i.e. the zero-inflated ordered probit model to reexamine whether my theory stands up to empirical investigation when using different models. This purely methodological chapter is designed to highlight the advantages of this new method for any ordinal-scale dataset that has a probability mass at the single value of 0.

The basic argument about the centrality of the probability of power sharing in a specific ethnic context in explaining ethnic conflicts receives strong support from all the models employed in this dissertation, i.e. between-effects, hierarchical, and ZIOP models.[11] Generally, presidential-PR systems provide a better preventive framework for addressing ethnic conflict for countries with two groups. Parliamentary-PR systems perform better than parliamentary-SMD systems, but not better than any other institutional configurations, in countries with multiple groups. These findings challenge the conventional wisdom that parliamentary-PR systems best handle ethnic relations. Even when such systems better handle ethnic relations, they outperform only one institutional configuration. Put differently, the only institutional configuration that

[11] There are a few unexpected findings, but they do not challenge the basic argument of this theory. I will detail the reasons in Chapters 5 and 7.

countries with multiple groups need to avoid is a parliamentary-SMD system.

My tests also show that ethnic diversity and group distributions, controlling for their interactions with government structure and electoral systems, must be part of any explanation of ethnic conflicts. Controlling for the institutional factors and other relevant variables, spatially concentrated groups indeed have a higher conflict propensity than dispersed groups, especially when looking at the ZIOP estimates. The basic argument about the effect of ethnic diversity— that given a certain institutional configuration, whether more or less diverse societies experience more intense conflict is decided by which types of societies using these institutions better promote their minority groups' influence in policy making—also receives some empirical evidence.[12]

Chapter 8 begins by summarizing the basic arguments, findings, and methodological contributions of this dissertation. I then discuss the limitations and the theoretical and policy implications of this dissertation. Theoretically, my dissertation implies that spatially concentrated groups which have a majority population in the region they reside are not predestined to be combative, as the theory of indivisible territory suggests (Toft 2003). Political systems affect whether ethnic groups have an incentive to fight against their regimes. I also argue, for example, that the interactive effects of government structures and electoral systems have been seriously overlooked to the extent that the importance of government structures has been widely and mistakenly forgotten or questioned,[13] that parliamentary systems or their combinations with PR systems do not serve as the one-size-fits-all solutions to ethnic conflict as many scholars and constitution designers believe, and that a lower number of veto players does not necessarily lead to a

[12] There are also a few unexpected findings. I will detail possible reasons in Chapters 6-7.
[13] Depending on research questions, the interactive effects in question may involve the impact of other variables, such as the contextual factors of this dissertation.

lower level of power sharing; the interactive models I use in this dissertation better detect this fact than a veto player model. On the policy side, I provide a set of solutions that fit the needs of specific divided societies, and warn that societies with both difficult situations of ethnic tensions and economic decline will be less likely to consolidate their democracies since these two problems may require different institutional solutions.

Chapter 2: Literature Review

In the first part of this chapter, I critically review the commonly acknowledged sources of ethnic conflict. I then discuss how previous research evaluates the (combined) effects of government structures and electoral systems. I also bring in the insights learned from contextual studies of groups' settlement patterns and group numbers to highlight the importance of the contexts when designing institutions to ameliorate ethnic conflict in specific ethnically divided societies. This chapter ends with a section on the frequently encountered methodological issues when modeling interactive effects and analyzing time-series cross-section (TSCS) data sets, together with an examination about how existing literature dealt with these problems.

There are five approaches to the subject of ethnic violence, i.e. material-based, nonmaterial-based, elite manipulation, territory (as well as reputation building), and institutions.[14] Each of these approaches captures some important dynamic of ethnic conflict. While material and nonmaterial explanations provide one-sided stories about ethnic conflict, theories stressing the importance of elite manipulation, territory, and institutions generally acknowledge the importance of both values. I discuss these approaches, one by one, in the following sections.

2.1 Material-Based Approaches

The first approach focuses on the effect of economic modernization, but the dominant paradigm within this approach has undergone a revolutionary change (Horowitz 1985; Newman 1991; Fearon and Laitin 2003). Inspired by the writings of Marx (1978)

[14] For excellent reviews of the studies using the first three approaches, please refer to Toft (2003), and Newman (1991).

and Durkheim (1933),[15] modernization used to be believed as a powerful force, which makes primordial collective conscience no longer relevant to the integration and survival of a society (Newman 1991). Individuals become loyal to the state rather than to their ethnic groups. This paradigm soon loses its validity, however, as continued ethnic conflicts across the world in both rich and poor regions exhibit the resilience of ethnic identity in every level of economic development.

While some wait for further economic growth to eventually fulfill the strong influence that they once believed it had, others search for a fundamental paradigm shift to the extent that the real empirical pattern of ethnic violence can be explained. Connor (1973) and Smith (1981), for example, argue that modernization invigorates ethnic divisions by increasing the interaction between groups which rapidly find that they compete for the same economic and socio-political resources. When groups perceive a decline in political or economic conditions after a period of development, they may mobilize to compete and even fight against one another. This theory is hard, if not impossible, to falsify because it is hard to measure individuals' perceptions about the relative decline or improvement in their standard of living and aggregate these evaluations across groups (Toft 2003). Even when some proxy variables are constructed, such as the economic differentials index in the Minorities at Risk dataset, time-series cross-national studies find no more severity of ethnic violence from groups experiencing more economic inequalities (Saideman et al. 2002).

Other scholars emphasize that modernization itself constitutes only a necessary condition (or neither a sufficient nor a necessary condition) for ethnic political activity

[15] Marx asserts that both ethnic nationalism and religion are mere components of the superstructure created by the dominant economic and political classes. In his later publication, Durkheim became less confident about the demise of collective conscience, but his earlier work attracted more attention and discussion (Newman 1991).

and that the actual development of conflict depends on other conditions, such as the balance of resources available to the various ethnic groups and especially their elites within a state (Rothschild 1981; Tiryakian and Rogowski 1985).[16] The difference in their views about what causes ethnic political activity notwithstanding, most of these scholars seeking a new paradigm within the modernization theory tend to oversimplify actors' motives as driven solely or mainly by economic concerns. They overemphasize the importance of resource competition as the cause of ethnic conflict at the expense of ethnic dimensions, and fail to take account of how elites mobilize mass support and why masses follow (Horowitz 1985).[17]

2.2 Nonmaterial-Based Approaches

If elites pursue a policy that deflects mass antagonisms onto other ethnic groups, such a policy must have roots in mass attitude, anxiety and ambition in order to succeed, says Donald Horowitz (1985). Horowitz is a serious critic of the "bloodless" theories, which use economic or class interests to explain bloody ethnic conflict, and is a famous advocate of the importance of the psychological dynamic of ethnicity. For him, the cause of ethnic conflict lies mainly in ethnic groups' struggle for relative group legitimacy and worth, which, he argues, means a lot to the self-esteem of group members. Horowitz downgrades the impact of economic interests on ethnic violence because of what he

[16] Many works on civil wars (which may include ethnic wars, but not exclusively) also stress the importance of "opportunity" (Eisinger 1973; Tilly 1978; Fearon and Laitin 2003), whose main determinant is the resources of finance and recruits for rebels. These factors' theoretical interpretation is not necessarily economic, however. For example, Fearon and Laitin's interpretation is more Hobbesian: "Where states are relatively weak and capricious, both fears and opportunities encourage the rise of would-be rulers who supply a rough local justice while arrogating the power to 'tax' for themselves and, often, for a larger cause."

[17] Even though some recognized the importance of ethnic ideologies, they are considered simply resources to be mobilized at the command of manipulative elites. Another material-based argument comes from the international relations literature, which focuses on a territory's intrinsic value (Toft 2003). This type of argument suffers from the same shortcomings as the modernization-related theories.

observed in his in-depth comparative case studies. For example, ethnic divisions of labor usually mitigate rather than facilitate competition and conflict between groups. When economically privileged “middleman” minorities have been attacked, the reasons have often been political. Job competition is also rarely a prominent factor in major urban ethnic strife. Moreover, secessionists have frequently been willing to lose from the realization of their separatist goal. This empirical evidence supports Horowitz’s view that “a bloody phenomenon cannot be explained by a bloodless theory” (Horowitz 1985: 140). His emphasis on relative group worth and legitimacy clearly brings the dimension of ethnicity back in as one major source of ethnic conflict and explains well why masses get motivated to engage in ethnic conflict.

Many other scholars across disciplines also pay attention to the ethnic component of inter-group conflict. They focus on the role of ascriptive features, history, and cultural heritage of groups in forming group identity and on the importance of group worth, ancient hatreds, fear, and other motivations in explaining ethnic conflict (Shils 1957; Geertz 1973; Isaacs 1975; Jervis 1978; Glaser 1992, 1997; Posen 1993; Rose 2000; Petersen 2002). They often ignore other important determinants of inter-group conflict, except for nonmaterial-based factors. Many of their explanations follow this logic: because ethnic groups ‘naturally’ want independence to protect their identity and well-being, they fight (Toft 2003). As a result, these scholars cannot explain why some but not other ethnic groups engage in fighting. They cannot contribute to our understanding about why groups cooperate, either. Finally, cross-national statistical studies also find no more occurrence, severity, or casualties of ethnic violence in countries with higher ethnic diversity (Fearon and Laitin 2003; Collier et al. 2004; Lacina 2004). In such countries, presumably we will be more likely to see ancient hatreds, fear,

and more serious competition for group worth among groups. These findings suggest that there may be some important omitted factors.

2.3 The Role of Elite Manipulation

While material-based and nonmaterial-based theories emphasize the effects of essentially structural factors on ethnic violence, some of them acknowledge the important role played by elites. After all, these factors cannot work themselves out, but must work through or be politicized by individuals and groups (Gourevitch 1979; Gagnon 1994).

Some of these studies emphasize material and others stress nonmaterial incentives that elites use to rally mass support. For example, Lake and Rothchild (1996) argue that ethnic conflict is most often caused by collective fears for safety of the future upon which ethnic activists and political entrepreneurs polarize a society. Gourevitch (1979) asserts that where economic growth and political leadership take place in different regions in a state,[18] elites in the region with ethnic potential are likely to develop strong, politically relevant nationalism. This stream of research emphasizes that ethnic conflict is caused by the oratorical skills of manipulative leaders, who often enjoy privileged access to the state media, which makes the detrimental impact of their propagandistic manipulations of public opinion even stronger (Snyder and Ballentine 1996).

This type of argument, however, presents a similar problem as typical elite-based theories. While elite approaches provide a micro-foundation as to how structural factors work to affect ethnic violence, they cannot stand on their own as a sufficient explanation in that elite behavior is embedded in and constrained by history, structure, and culture. In

[18] Gourevitch refers to economic growth and political leadership as that which constructs and maintains an industrial economy and strong central institutions common to the whole country, and that which formulates common policies in key areas, respectively.

addition, these approaches overpredict violence and cannot explain why some elites succeed and others fail; they mistakenly describe nationalism as serving merely for the interests of elites and the masses as simply passive victims of the elites' rhetoric; and they afford elites too strong effects and fail to account for cases where elites are able to arouse a passive nation to violence but are unable to stop the wars (Toft 2003). Last but not least, elite-manipulation approaches generally ignore how institutions shape elites' incentives to play the ethnic card; elites may be capable but unwilling (or less willing) to do that when institutions guarantee them a reasonable share of power.

2.4 The Importance of Territory

For those discontented with the one-sided material- and nonmaterial-based as well as the elite-based approaches, some assert that, as both a material and nonmaterial resource, territory informs the motives of disputing actors and explains why some ethnic conflicts turn out to be violent and others nonviolent (Toft 2003).[19] If a state needs to build reputation that it would not allow the independence of a separatist group in order to prevent future challengers,[20] and if, at the same time, an ethnic group in question sees their interests and occupying territory as indivisible, then violent confrontation between the two actors erupts. Given that the subjects of Toft's research include ethnic groups not only from democracies but also from autocracies, the important question, i.e. whether democracies respond to minority demands for sovereignty and self-determination

[19] This type of argument differs from those focusing only on the material values of a territory and, hence, better explains why some actors are willing to risk death, imprisonment, or mass exile to fight for a worthless land.

[20] Toft (2003) and Walter (2006) argue that when there exist multiple (geographically concentrated) ethnic groups in a state and when one of the groups demands sovereignty, the state would need to build reputation of not allowing that to deter future challengers.

differently from autocracies, is left unanswered and warrants more discussions here.[21]

Toft argues that when groups have legitimacy and capabilities (determined mostly by their geographic settlement patterns and their population size) to control their territory, they will see their interests as indivisible and demand sovereignty. Even if they do that, however, it is usually hard to gauge whether secessionists really demand independence or seek other goals behind the mask of their self-determination movements (Gurr 1993), especially when they live in a democratic state. An examination of the MAR data set, whose units of analyses are ethnic groups within a country for a given year, provides some clues. First, for up to 81.33% of group-years under democracies during the time period of 1985-2003, the independence issue is either less salient or non-existent. [22] Second, in terms of the salience of this issue for each group, independence had been a significant concern for only about 27% of the groups. Moreover, the extent to which a group cares about independence changes over time for most of the groups and in the same direction toward becoming low or not at all. These empirical patterns suggest two points. First, for groups who have legitimacy and capabilities to control their territory, most of them during most of the time do not demand sovereignty. Secessionists constitute minorities among all the ethnic groups living under democracies probably because democracies better accommodate their interests. Second, even if groups seek self-determination, their pursuance is not constant and dwindles in terms of its strength over time. Self-determination movements, in other words, may not be the end but rather are means of achieving other goals, such as competing for more power-sharing. Adopting appropriate democratic institutions to better serve and accommodate the needs and

[21] There are more weaknesses in the analysis of Toft (2003). Please refer to the following section of this chapter for details.

[22] The estimate should be much different when looking at group-years under autocracies.

interests of ethnic groups is thus very crucial to peaceful ethnic relations.

Walter reaches the same conclusion about the effect of regime types in his 2006 *American Journal of Political Science* article that establishes the relation between reputation building and government accommodation. Violent conflict between a state and a separatist group in a democracy is found to be less likely in his large-N quantitative analysis, because democracies are more tolerant and more sensitive to the rights of individuals seeking self-determination. Walter, however, does not delve deeply enough into the impact of institutional variations on violence within democracies. Specifically, he does not investigate which combinations of government structures and electoral systems better take care of both the economic and symbolic interests of individuals and groups.

2.5 Institutional Approaches

Like Toft and Walter, institutionalists do not take sides between material-based and nonmaterial-based explanations because of the frequent conjunction between material and nonmaterial factors. Appropriate institutions not only facilitate the protection and advancement of group interests, but also provide a sense of empowerment and security. This explains why Horowitz, while excessively putting emphasis on psychological factors and the wellsprings of mass motivations, acknowledges the importance and viability of managing ethnic conflict by adopting the right institutions to constrain elites' incentives to fight. Unlike almost all the aforementioned approaches,[23] which are essentially structural and, hence, stress factors that are immutable or hardly changeable at least in a short period of time,[24] the institutional approach is less predestined in the sense that

[23] The elite-based approach is the only exception.
[24] These factors include, for example, economic development, relative deprivation, group worth, geographic settlement patterns, and ethnic profiles.

institutional reforms, still hard though, are relatively more likely,[25] ceteris paribus. While a variety of causes relate to the occurrences and/or severity of violence and no scholars argue that their chosen approaches provide the best and the most exhaustive explanations, the institutional approach is not inherently better than the others, either. This approach, however, contributes to a complementary understanding about the multi-faceted phenomena of ethnic violence. This section critically reviews the existing research on the effects of the two important institutions of consensus democracy,[26] i.e. government structures and electoral systems,[27] followed by a section on how these effects are influenced by contextual factors.

2.5.1 The Theories of Consociational and Consensus Democracy

Comparativists have provided several institutional analyses and prescriptions for better managing ethnic conflict. Lijphart's studies (1977, 1999, and 2002) on this topic are probably the most well-known and most comprehensive in the sense that he discusses the effects of a variety of institutional factors. Lijphart argues that consensus (or consociational) democracies better handle ethnic tensions because of their sharing, dispersing, and restraining power in a range of ways, which is compatible with the needs of (deeply) divided societies. Although quite similar, consociational democracy still differs significantly from consensus democracy (Lijphart 1984 and 1999).

For Lijphart, to qualify a polity as consociational democracy, four characteristics of elite cooperation, namely a grand coalition, proportionality, mutual veto, and segmental

[25] This is especially the case for lower-level institutions, such as electoral systems.
[26] Why some but not other institutions are adopted in the first place is beyond the scope of this dissertation. Future work should try to provide answers.
[27] Government structures are not explicitly listed but closely related to the two institutional devises of consensus democracy, i.e. executive power sharing in broad coalition cabinets, and executive-legislative balance of power. Please see the following discussion for more details.

autonomy, must *all* be present in *deeply* divided societies. It, however, is very hard to gauge how ethnically divided a society is and to determine what the prevalent political decision mode in a country is.[28] Even those countries which are classified as consociational democracies by Lijphart's "impressionistic method" usually turn out to be controversial because of their lack of one or more defining features (Steiner 1981; Andeweg 2000; Horowitz 2002).[29] Examples are abundant, such as those deficient in a grand coalition, including Lebanon, Malaysia, the Netherlands, and Surinam, as well as Switzerland, whose Federal Council is arguably not a real grand coalition and which is actually not a deeply divided society and, hence, conceptually cannot be called a consociational democracy. Finally, some scholars claim that consociationalism is not a theory but a mere tautology in that consociational democracy is defined by the problem (the presence of a deeply divided society) and its solution (elite cooperation) (Andeweg 2000).

Given that not all the countries dealt with in this dissertation are *deeply* divided societies, which are an indispensable element in the definition of consociational democracy and for which consociational democracy is the stronger medicine (Lijphart 1989), and given that the definitional features of consensus democracy are more institutionally oriented than those of consociational democracy (Andeweg 2000),[30] I will discuss the approach of consensus democracy in more detail.[31]

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[28] Some scholars thus propose to change the units of analysis from decision making in entire countries to decision making about individual issues (Steiner 1981). Aggregated decision mode is, however, indispensable if the research of interest is to "establish links between typical decision-making patterns of national political systems, the degree of pluralism of their societies…, and so on" (Lijphart 1981).

[29] This method means that making an expert judgment based on one's reading and interpretation of literature.

[30] In contrast to the institutional definitions of consensus democracy, consociational democracy has more behavioral oriented definitions. For example, in consociational democracy, proportionality is not limited to the electoral system. It also constitutes the principle when elites distribute public office and resources.

[31] For more details on the critiques of consociationalism, such as the alleged problems of giving autonomy

Among the ten institutional devices in a typical consensus democracy, the ones relevant to this paper are executive power sharing in broad coalition cabinets, the executive-legislative balance of power, multiparty systems, and PR systems, which cluster around an executive-legislative dimension.[32] Through cross-national analyses, Lijphart (1999) finds that consensus democracy outperforms majoritarian democracy in managing political violence. Using Lijphart's consensus-majority index of democracies, Anderson and Guillory (1997) also find that consensus democracy displays higher levels of satisfaction with democracy among minority groups, which arguably implies a lower likelihood of ethnic conflict. However, focusing on such a composite index, these three authors leave the specific effect of each institutional component of consensus democracy unexplored. It is doubtful that all the institutions of consensus democracy are conducive to ethnic conflict management.

2.5.2 Debates on Electoral Systems

The most well known critic is probably the incentives school represented by Horowitz (2002).[33] He argues that by maximizing incentives for accommodative behavior, preferential electoral systems (e.g. Alternative Vote (AV) systems) better ensure

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to ethnic groups and the alleged less convincing conditions for consociationalism, as well as Lijphart's responses to these criticisms, see Andeweg (2000), Lijphart (1985 and 2002), and Steiner (1981).

[32] Also in this dimension but not the focus of this project is interest group pluralism. Given that the factor loading of this institutional device is not particularly high and given that the correlation between variables within each dimension is strong, excluding interest group pluralism from this analysis should not do much harm. Other institutional devices of consensus democracy which cluster around the other dimension of federal-unitary systems include: bicameralism, central bank independence, constitutional rigidity, federalism, and judicial review. Among these five institutions, federalism's factor loading of 0.86 is the highest which means that federalism better coincides with the factor than all the other institutions. This fact, together with the lack of data of all the other institutions, should justify excluding these other institutional factors from analysis.

[33] It should be noted that Horowitz emphasizes the inappropriateness of identifying him as an opponent of either power-sharing or territorial devolution, although he is truly a dissenter from the consociational approach.

the moderation of ethnic politics than PR systems.[34] This is because the mere need under PR systems to form a coalition will not lead to compromise. The incentive to compromise is the key to accommodation. Without the incentive to compromise, only coalitions of convenience will be formed and they are doomed to dissolve (Horowitz 1991). Preferential electoral systems, on the contrary, provide this incentive to compromise. By enabling voters to rank candidates in their order of preference and by making the votes transferable from the least preferred candidates to others (if no candidates achieve the quota of votes required to elect a single candidate), such systems encourage politicians to campaign both for first-preference votes from their own community and for second-preference votes from other groups. This process will make cross-ethnic appeals more important, accommodative behavior more inevitable, and pre-electoral coalitions more likely.[35]

In response, Lijphart argues that the logic and the practical effect of Horowitz's vote-pooling systems do not differ significantly from those of majoritarian systems. In addition, politicians' or parties' desire to coalesce under PR systems in order to gain and stay in power does imply the need to compromise (Riker 1962; Lijphart 2002). Furthermore, there are only a few countries using AV or Single Transferable (STV) systems, another preferential vote system.[36] Some of which, such as Fiji, Lebanon and Malaysia, were democracies for only a few years or have never been democracies since

[34] Please refer to Reilly (2002) for more discussion on the effects of preferential electoral systems.

[35] Horowitz (2002) also argues that by acknowledging the plasticity of group identities, the incentives approach can help preserve multipolarity and prevent the emergence of more severe conflict. This argument contradicts, to some extent, his other comment in the same article about how rare multipolarity is, in the sense that if bipolarity is the norm, as also suggested in Posner (2004), then it is generally irrelevant to talk about which electoral systems better preserve multipolarity.

[36] According to Reilly and Reynolds (1999), only three and two democracies used (or have used) AV and STV systems, respectively. Australia (an established democracy), Fiji since 1997 (a transitional democracy), and Papua New Guinea during 1964 and1975 (an established democracy) are the three countries adopting an AV system, while Estonia in 1990 (a transitional democracy) and Northern Ireland in 1973 (a failed democracy) are the two states employing a STV system.

1940s according to the Polity IV dataset, a fact that will make many researchers exclude these countries from their comparative studies of electoral systems or other institutions.[37] Because only a few democracies used or have used preferential vote systems, their effects are hard to be evaluated in large-N studies. It is therefore difficult to empirically resolve the debate between Horowitz and Lijphart. Regardless, the bottom line is that Lijphart's composite consensus-majority index of democracies does not tell us what the specific effect of PR systems is, vis-à-vis non-PR systems.

2.5.3 Debates on Government Structures

The debate between presidentialism and parliamentarism provides another reason to doubt that all the institutions of consensus democracy reduce ethnic conflict. Advocates of parliamentarism, such as Lijphart (1994, 1999, and 2002) and Linz (1994), argue that presidentialism is less desirable because a presidential election introduces a strong element of zero-sum game, and a winner-take-all outcome. Losers have to wait for the expiration of fixed presidential terms without any access to executive power (since it is less likely that the presidential systems will have coalition governments even when there is no single-party majority in a parliament). However, it is noteworthy that Lijphart's consensus-majority index of democracies shows that he considers both presidentialism and parliamentarism to have their own advantages. While presidentialism is scored higher with respect to executive-legislative balance of power, parliamentarism is ranked higher with respect to executive power sharing in broad coalition cabinets.[38] This suggests that

[37] Students of comparative institutional studies usually focus on only democracies with the assumption that electoral systems and other institutions will function differently in non-democracies (Anderson and Guillory 1997; Power and Gasiorowski 1997; Cheibub 2002; Cheibub et al. 2004; Samuels and Hellwig 2007).

[38] In presidential democracies, a grand coalition is not unlikely but more difficult to form, as the presence

Liphart's preference for parliamentarism is inconsistent with his composite index of democracies.

Other scholars argue for the advantages of presidentialism (Shugart and Carey 1992). They claim that separation of powers deprives presidentialism of the possibility of becoming as majoritarian as parliamentary-one-party-cabinet systems. Parliamentary-one-party-cabinet systems can also generate even more enduring and unchallengeable winners if the same party continuously wins parliamentary elections under the condition of no term limits. However, Lijphart and his associates (1993) challenge this view. They argue that the concentration of executive power in one person (such as in presidential systems) is even more majoritarian than concentration of power in one party (such as in parliamentary systems). This counterargument is not legitimate because, for ethnic groups having no access to executive power, it should not matter whether the executive power is concentrated in one or several hands, if they are drawn from their rival ethnic group. Regardless, the debate between presidentialism and parliamentarism suggests that neither of the two sides is completely right. As Gunther and Mughan (1993: 288 and 291) conclude, "majoritarian behavior is at least intermittently possible in separation of powers systems, especially when electoral rules in such systems are strongly majoritarian," and "parliamentary systems of government give rise to very different conflict management styles, ranging from adversarial majoritarianism found in Britain to the consociational consensualism characteristic of Belgium…. Its interaction with national electoral laws contributes powerfully to it." Presidential systems should have some advantages over parliamentary systems if the latter go together with non-PR systems. But when parliamentary and PR systems coexist, parliamentary systems are

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of only a few examples in Cyprus as well as Colombian during 1958-74 suggests (Lijphart 2002).

probably more propitious than presidential systems.

Lijphart and his associates (1993) report that semi-presidential systems outperform their presidential and parliamentary counterparts in managing ethnic conflict.[39] One possible reason may be due to the arbitral character of political executives in semi-presidential countries. They never test this hypothesis, however, and because their analyses are based on only three cases of semi-presidential systems, they are inconclusive. The effect of semi-presidential systems on ethnic conflict has been generally overlooked, and it remains unclear both theoretically and empirically whether semi-presidential systems are really preferable to other types of governments in promoting civil relations between ethnic groups regardless of which electoral systems are used. If they do, this implies that not all the components of consensus democracy need to go together to produce better outcomes, as O'Leary (2002) asserts.[40] In sum, the validity of Lijphart's conclusion that PR and parliamentary systems and their combinations are superior requires further theoretical justification and rigorous, empirical tests.

2.5.4 Few Generalizable Analyses and a Crucial Omitted Variable: The Interactive Term of the Two Institutions

Several attempts to investigate the importance of specific components of consensus

[39] Semi-presidential systems are those in which the government must respond to a legislative assembly and to an elected president, who possesses quite considerable powers (Duverger 1980). Unlike in presidential and parliamentary systems, who controls executive power is unclear in semi-presidential systems, because both a president and a parliament have some control over it. Furthermore, unlike in presidential systems, coalition cabinets are likely in semi-presidential systems when there is no single-party majority. Please refer to Bahro (1997), Bahro et al. (1998), Elgie (1999), and Fish (2003) for comparisons between presidentialism, semi-presidentialism, and parliamentarism, and for discussions on semi-presidentialism in Western Europe and Postcommunist region.

[40] O'Leary claims that with all the other consociational institutions, Northern Ireland will be better off if it adopts one non-consociational institution, i.e. a STV system. STV is superior because the relevant ethnic communities of Northern Ireland are internally democratic, rather than sociologically and politically monolithic. This ensures that STV will be able to encourage cross-ethnic vote pooling and benefit hardliners willing to become less hardline.

democracy exist, with many more studies focusing on electoral systems at the expense of government structures (Reilly and Reynolds 1999; Horowitz 2002; Reilly 2002). Of these attempts, however, only a few provide large-N generalizable analyses (Cohen 1997, Saideman et al. 2002). In accordance with Lijphart's theory of consensus democracy, Cohen (1997) and Saideman et al. (2002) find that PR systems tend to prohibit or reduce ethnic conflict. Gunther and Mughan (1993) and Saideman et al. (2002) find no consistent pattern linking either presidential or parliamentary institutions to effective conflict management.[41] These consistent findings about the effects of electoral systems and government structures are impressive. However, these studies exhibit problems of model misspecification because they neglect the important interactive effects of government structures and electoral systems. Moreover, a close examination of the data set of Saideman and his colleagues reveal that they actually make a data-processing error that turns the originally significant variable of government structures into insignificant.[42] It is, therefore, still too early to argue conclusively against any important role played by government structures.

The importance of the interactive effects of government structures and electoral systems has been implied by the previous discussion of the debate between

[41] Saideman et al. (2004) find that "parliamentary democracies may be more susceptible to rebellion because of their endogenous electoral calendar." This finding is contrary to the common view that presidential systems are inferior. However, the authors also mention that "further work is required to determine whether it is the uncertainty of the election calendar or other features of parliamentarism and presidentialism that drive these results." Given that the authors ignore the interactive effects of government structures and electoral systems, this finding may be due to model misspecification.

[42] Specifically, Saideman and his associates make a mistake when creating the lag of the dependent variable. There are 264 groups on their time-series cross-sectional data set and the total number of observations for the dependent variable is 3590. It should therefore be expected that the total number of observations for the lagged variable is about 3326. The number is, however, 3589, based on their data set, a lot higher than expected and only one less than that of observations for the dependent variable. The source of this inaccuracy comes from the way the authors generate the lagged dependent variable, i.e. instead of a missing value, the value of the last observation for the former group on the data structure is encoded as the lag of the first observation for the group in question. For estimates after correcting their error, please refer to Table1 of this chapter.

presidentialism and parliamentarism. In fact, when discussing the effects of government structures on ethnic conflict, most scholars mention that their effects depend on which electoral systems are adopted. [43] It is striking, therefore, that there are no analyses investigating the interactive effects of all the possible combinations of government structures and electoral systems on ethnic conflict.[44]

The need to discuss the combined effects of government structures and electoral systems on ethnic conflict is straightforward. If government structures determine the power relationship between executive and legislative branches which have impact on ethnic conflict, parliamentary electoral systems influence how many and what types (national or regional concerned, moderate or extreme) of representatives and parties will get elected (Duverger 1963; Lijphart 1994; Ames 2001).[45] This in turn affects the inter-branch power relationship and ethnic conflict. For example, Parliamentary-non-PR systems tend to produce a monopoly of power for one party (one group) in both branches, which in turn results in executive dominance, power concentration, and, consequently, more feelings of insecurity felt by ethnic groups and more ethnic conflict. If Parliamentary systems are combined with PR systems, then multiparty systems and

[43] To better understand the effects of political institutions on regime survival, Cheibub and Limongi (2002) also suggest that the combined effects of government structures and electoral systems should be explored. It is well known that the combined effects are considered crucial determinants for regime stability in Latin America (Mainwaring 1990 and 1993). No effects of the "difficult combinations of presidential-PR systems" are found in the third world, however (Power and Gasiorowski 1997), and some scholars insist that the independent effects of government structures on regime survival matter equally as the interactive effects (Samuels and Eaton 2002). Regardless of this unsettled debate, for ethnic conflict, many scholars agree that it is the interactive effects of governmental and electoral systems that matters.

[44] Lijphart (1996) discusses the joint effects of government structures and electoral systems and points out that a parliamentary-PR system is the best combination. He, however, does not control for any relevant variables, and examines only the links between institutions and women's representation (a challengeable indicator of minority representation), not the relationship between institutions and ethnic conflict. He also unjustifiably excludes semi-presidential and presidential-PR systems from his analyses.

[45] Although presidential electoral systems also have effects on ethnic conflict (Horowitz 2002), the variations of these systems remain very small across countries (Shugart and Carey 1992). It is, therefore, hard to test their effects.

coalition cabinets are more likely, as the 1996 and 1999 elections under the new electoral system (which is closer to PR than to non-PR systems) in New Zealand clearly illustrated. Such party systems and cabinets lead to more power sharing, more balanced executive and legislative power relations, and, hence, more peaceful ethnic relations (Lijphart 1999). In sum, it is important to examine the combined, instead of individual, effects of government structures and electoral systems on ethnic conflict.

2.6 The Importance of Contextual Factors

Appropriate institutional configurations are ultimately contextual (Reilly and Reynolds 1999). Reilly and Reynolds list a variety of contextual factors that will decide which electoral system, PR or AV, is better. These factors include the nature of group identity, the intensity of conflict, and the spatial distribution of conflictual groups. While the merits of electoral systems have multiple dimensions, such as proportionality and cross-ethnic vote pooling, I examine only the proportionality dimension because there are so few countries using preferential electoral systems and, hence, not enough cases for comparison. For the choice between PR and non-PR systems, I assume that only the spatial distribution of ethnic groups matter for the following reasons:

(1) The nature of group identity, according to Reilly and Reynolds, will decide whether PR or AV is more desirable. If ethnic allegiances are primordial, then PR systems which better recognize and accommodate interests based on ascriptive communal traits should be chosen, and vice versa. However, few scholars in comparative politics would admit to holding a completely primordialist view of ethnicity.[46] In practice, almost every politicized ethnic conflict shows claims from a combination of both primordial

[46] Please refer to Lin, Wu, and Lee (2006).

associations and instrumentalized adaptations (Kandeh 1992; Reilly and Reynolds 1999). Given these mixed causes of ethnic identity and conflict, it is hard to say whether PR or AV (or non-PR) is more desirable.

(2) The intensity of conflict also matters for choosing between PR and AV systems. When ethnic conflict is so intense that there is no possibility of cross-ethnic vote pooling, PR systems should be used. This factor is not as important in the comparison between PR and non-PR as in the evaluation between PR and AV, because only a few non-PR systems are AV systems.

I do think that the possibility of ethnic conflict, given certain geographic distribution of ethnic groups, bears on the choice between PR and non-PR. According to the existing literature (Gurr 1993; Byman 1997; Ayres and Saideman 2000; Saideman and Ayres 2001; Toft 2003), the spatial distribution of ethnic groups determines the possibility of ethnic conflict. Geographically concentrated ethnic groups are more likely to be legitimate and capable irredentist or secessionist and, hence, more likely to engage in conflict. There is one caveat – i.e. urbanites, unlike other concentrated groups, are usually new immigrants from their homelands. They neither have a strong attachment to the lands they currently occupy nor have high legitimacy to claim the right to control the lands (Toft 2003). In a crisis situation, they also tend to run away because their homelands are elsewhere and their employment skills tend to be transportable (Chin and Kaiser 1996; Toft 2003). With low legitimacy and no motivation to fight for the lands they reside, spatially concentrated urbanites, though capable because of their spatial concentration, would not risk their lives to engage in conflict. In sum, when ethnic groups are concentrated and when they are also not urbanities, they will be more likely to fight to compete for power. A fairer PR system is hence required to reduce such groups' senses of powerlessness and propensities for

conflict. For dispersed ethnic groups, there are competing notions about which types of electoral systems better serve their needs. I will discuss this topic in Chapter 3.

Because existing literature has focused on electoral systems at the expense of government structures, no conventional wisdom tells us whether contextual factors also influence the choice of government structures. Logically, the choice should be greatly mediated by the number of ethnic groups. I will elaborate on this point in the next chapter.

2.7 Methodological Review

In this section, I examine how existing literature dealt with the most frequently encountered methodological challenges when modeling interactive effects and analyzing TSCS data, the two topics relevant to the research design of this dissertation.

2.7.1 Modeling Interactive Effects

The rule of thumb in dealing with interactive effects is to model them according to a theoretical work. As Friedrich (1982) notes, however, the technique of adding the interactive terms of the variables of interest has been criticized for generating unreliable and even meaningless results that are hard to interpret. The only correct strategy is still to derive and specify models from theoretical works because of two reasons. First, the estimates of models with interactive terms are just hard, but not impossible, to interpret. Second, dropping important interactive terms in order to avoid meaningless estimates and collinearity induced by such variables will cause even worse problems of model misspecification and biased estimates.[47] Unfortunately, many scholars have proposed

[47] The presence of collinearity usually prevents precise estimation and results in insignificant t ratios,

interactive hypotheses but not modeled them as such, or have become confused about how to interpret their results (Kam and Franzese 2005).

In interactive models, unlike in the simple linear-additive regression, the coefficient of a variable and the effect of a unit increase in that variable on the dependent variable are different. This simple fact notwithstanding, many scholars do not understand the distinction. Some vague and misleading terms are thus used, such as “main effect” and “interactive effect,” “direct effect” and “indirect effect,” and “independent effect” and “total effect” for the estimates of the two independent variables in question in the first case and of their interactive term in the second (Kam and Franzese 2005). To interpret correctly the coefficients of interactive models is to remember that interactive terms always have “multiple effects, neither any single, constant effect nor a main effect and an interactive effect, but multiple, different effects depending on the levels of the other variable(s) with which it interacts” (Kam and Franzese 2005: 18). This understanding is not new (Friedrich 1982; Gujarati 1995; Braumoeller 2004), but has been generally unappreciated. Many scholars continue to interpret the coefficients of the two independent variables in question. Braumoelloer (2004) makes clear the consequence of this unfortunate practice: When a statistical equation includes a multiplicative term in an attempt to model interactive effects, the statistical significance of the lower-order estimates is largely irrelevant for the usual purposes of hypothesis testing.

Worse yet, many scholars use wrong models and reach baseless conclusions. Two types of wrong models are of most frequent use. Some researchers omit the interactive term from their empirical model and mistakenly interpret their test results as supportive

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making researchers unable to reject the null hypothesis when in fact it is false. Dropping collinear variables to get rid of the problem generally cannot serve as a remedial measure, either, in that this practice would lead to an even worse consequence, i.e. biased estimates (Gujarati 1995).

of their interactive hypothesis. For example, as aforementioned, Toft (2003: 30) argues that "if both a state and an ethnic group represent their interests as indivisible, then the chance of reaching a settlement short of war is unlikely," and that "if either or both a state and an ethnic group represent their interests as divisible, then the chance of reach a settlement short of war is likely." These hypotheses clearly illustrate the needs of incorporating in the model the interactive term of how a state and an ethnic group represent their interests, but Toft disregards this necessity. Without deriving an empirical model from her theoretical work, Toft groundlessly concludes that the statistical analysis supports her theory.[48] Numerous examples that show a disconnection between theories and empirical models exist in institutional studies (Kam and Franzese 2005).

Other scholars arbitrarily encode different institutional configurations. From the perspective that theoretical works should direct the specification of empirical models,[49] the first type of empirical model deviates from a theoretical work more seriously than the second type. The second type of model is also not superior, however. One example explains the reason. In establishing that majoritarian variants of democracy are more resistant to economic contraction than pluralist ones, Bernhard and his associates (2001) classify the institutional configurations of government structures and party systems into five types in a continuum from the most to the least majoritarian institutional combinations: majoritarian, quasi-majoritarian, mixed, quasi-pluralist, and pluralist systems, with 1 representing majoritarian and 5 indicating pluralist systems. This

[48] Even without this problem of model misspecification, Toft's additive model does not support her theory, either. The coefficient associated with the variable of whether a state represent its interest as indivisible, though positively related to the level of ethnic conflict as expected, is statistically insignificant.

[49] This is the spirit of EITM, which stands for Empirical Implications of Theoretical Models. Recognizing that theories too often proliferate without appropriate testing, and empirical work too frequently applies vague and oversimplified theory and that gaps between theory and empirical method seriously harm scientific progress, the Political Science Program of the National Science Foundation has supported annual summer institutes on EITM since 2002.

parametric coding scale, while saving more degrees of freedom because of substituting a single variable for potentially many interactive terms, is quite arbitrary. It remains unclear what justifies that a unit increase in this variable of institutional configurations leads to the same amount of change in the values of the dependent variable regardless of the place of the change. Lijphart's 1996 study on the link between minority representation and the combined effects of government structures and electoral systems also uses this approach and, hence, suffers from the same methodological problem.

In sum, although the only correct strategy is to incorporate multiplicative terms in empirical models when there are interactive effects between variables, much existing literature either excludes interactive terms from analysis or uses an arbitrarily constructed single variable as a substitute. The difficulty in interpreting the test results and the concern about the potential presence of collinearity in models having interactive terms do not justify such alternative practices, as more and more scholars acknowledge. I will follow the correct strategy to test my interactive hypotheses.

2.7.2 Analyzing Time-Series Cross-Section Data

There are many challenges when analyzing TSCS data, including autocorrelation, panel heteroskedasticity, and unit heterogeneity (Wilson et al. 2007). Ever since1995, when Nathaniel Beck and Jonathan Katz (B&K) wrote a paper entitled "What to do (and not to do) with time-series, cross-section data" in the American Political Science Review, the tremendous rate at which scholars have adopted their prescriptions has not been paralleled by other work in the discipline. This state of the discipline, however, has produced many inconsistent and non-robust estimates because many scholars have used the B & K method without enough amount of caution (Maddala 1999; Wilson et al.

2007).[50]

The B & K approach requires three steps: First, pool the data from different countries (or from states or other units of analysis) into one data set and apply OLS. Second, deal with the problem of autocorrelation by adding a lagged dependent variable to the model. Third, calculate panel-corrected standard errors (PCSE) to adjust for heteroskedasticity. Many scholars have so willingly and eagerly followed Beck and Katz's advice that "they have been blind to theory, data characteristics, a variety of specification issues, alternative models, appropriate diagnostics, and long-established pitfalls of regression analysis" (Wilson et al. 2007). Students of ethnic politics have made no exceptions.

Two studies on ethnic politics are especially important for the discussion here. Like this dissertation, these studies use the Minority at Risk data set to establish relations between political institutions and ethnic conflict. One is entitled "Proportional versus majoritarian ethnic conflict management in democracies," written by Cohen (1997). The other is on "Democratization, political institutions, and ethnic conflict," authored by Saideman and his associates in 2002. Both scholars overlook the possibilities of unit heterogeneity and alternative dynamic specifications. Furthermore, Cohen assumes in his article a certain type of data generating processes of the dependent variable, i.e. a trend-stationary process, which may or may not be true. Saideman and his colleagues follow the B & K method, but substitute Prais-Winsten regression for OLS without testing for the presence of unit roots. I should briefly discuss these problems, especially on and starting from the issue of stationarity.

[50] Beck and Katz (1996) are careful enough to suggest testing for serial independence of the error terms after estimation using their approach, but few scholars note and follow this advice.

It is well known that when time series data is nonstationary, there is no meaningful relationship between the variables of interest even if we get significant estimates. This fact necessitates testing for unit roots before doing any time series analysis. Neither Cohen nor Saideman and his co-authors follow this procedure. Cohen simply assumes that the data of ethnic conflict is stationary and exhibits a deterministic trend, and then uses a variable of years as a simple means to combat serial autocorrelation. Saideman and his colleagues follow almost exactly the B & K method in the belief that controlling for the lagged dependent variable would purge the dependent variable of serial autocorrelation. This may not be the case. Worse yet, "with lagged dependent variables, it is well known that OLS estimators are inconsistent in the presence of serial correlation in errors" (Maddala 1999: 60). Using the same dependent variable and data set as Cohen and Saideman et al. enables me to falsify Cohen's assumption that his dependent variable does not have a unit-root problem, and to reject the use of the B & K method in analyzing the Minorities at Risk data.[51]

Do methods matter? To illustrate how methods make a difference, I replicate part of Saideman and his associates' analysis and try a different method, using the data set the authors kindly provide.[52] In the replication, I assume that their dependent variable is nonstationary,[53] and use a "more conservative" between effects model to analyze the data.[54] As aforementioned, Saideman and his colleagues made a mistake in the way they created the lagged dependent variable. I have corrected the error, so the data I used to

[51] Studies on ethnic politics using Minority at Risk data set are booming. Please refer to http://www.cidcm.umd.edu/inscr/mar/resources.asp#pubs for a list of publications using MAR data.
[52] My focus on the Saideman et al. dataset is not because their analysis is especially problematic. Instead, my focus is because of these authors' gracious offer of their data.
[53] This assumption is proved to be true based on the test results of unit roots. Please refer to Chapter 4 for details.
[54] I discuss in Chapter 4 the most frequently used alternative models for time-series cross-section analysis.

replicate their analysis and the results I obtained are not completely the same as theirs. Regardless of this fact, what is important is whether performing different types of regressions results in divergent conclusions about the independent variables' effects.

The estimation results are summarized in Model 1 and Model 2 of Table 2.1. According to Model 1 which performs Prais-Winsten regression with PCSE, the lagged dependent variable, regime duration, electoral systems, government structures, GDP per capita, change in GDP per capita, and group concentration significantly affect the level of ethnic violence. Performing between effects regression to analyze the same data set leads to the acceptance of the null hypotheses that regime duration and change in GDP per capita do not affect the level of violent conflict. These two factors were significant in the previous analysis, however. This comparison clearly confirms that methods matter and it is imperative to test for the presence of unit roots before doing any analysis.

Stationarity is not the only methodological issue in TSCS studies. The other two issues that are briefly discussed here include unit heterogeneity and alternative dynamic specifications. Unit heterogeneity, which the B & K method simply assumes away, means that countries differ in ways not captured by observed independent variables. Mere variations in the mean levels of independent variables and in the intercepts across units of analysis can result in very different parameter estimates when analyzing pooled data (Singer and Willett 2003, Wilson et al. 2007). Remedial measures include doing fixed, between, or random effects analysis.[55] Wilson and his associates (2007) perform fixed

[55] For the advantages and disadvantages of these models, please refer to Frees 2004 and Wilson et al. 2007.

Table 2.1: Time-Series Cross-Sectional Analyses of Rebellion in Democracies during 1985-1998

	Model 1: Prais-Winsten Regression with PCSE		Model 2: Between Effects Analysis	
Variable	b	SE	b	SE
Lag of dependent variable	.60***	.09		
Enduring regime	.14**	.07	.39	.30
First election	-.06	.20	.50	1.44
Electoral system	-.14***	.05	-.29***	.11
Parliamentary	.22*	.13	.51*	.26
Federal system	.01	.09	.05	.26
GDP per capita	-.00***	.00	-.00**	.00
Change in GDP per capita	.01**	.00	.05	.05
Cultural differences index	-.02	.04	.05	.11
Economic differences index	-.00	.04	-.01	.08
Political differences index	.04	.04	.06	.10
Group concentration	.12**	.05	.34***	.10
Constant	.41	.26	.54	.58
Rho	.47			
R-squared	.46		.24	
n of observations	1198		1258	

*p<.10 **p<.05 ***p<.01

effects analysis on the data of Saideman et al. (2002) and find an even stronger effect of regime type, but an opposite effect of regime duration. These authors' findings confirm the importance of taking unit heterogeneity seriously when analyzing TSCS data.

Alternative dynamic specifications also matter. Beck and Katz (1996) advise testing the appropriateness of more general dynamic models. Few scholars have paid attention to that advice and most scholars stick to the B & K's 1995 prescriptions. Alternative dynamic models include, to name a few, models with lagged independent variables, models with both lagged independent and dependent variables, and first difference models. Given that all these models capture the same contemporaneous effects of independent variables on dependent variables, and all the dynamic specifications seem equally plausible, it is better to do robustness checks by performing different models. Wilson and his colleagues do this on many published works, including Saideman et al. (2002), and conclude that many findings of these works are highly dependent on the method used to obtain them.

This discussion should have provided a simple lesson, i.e. any careful study using TSCS data should take very seriously the problems of autocorrelation, unit heterogeneity and alternative dynamics.

2.8 Conclusion

My dissertation aims at overcoming all the theoretical and methodological shortcomings of the existing literature discussed in this chapter, and contributes to a more correct and better understanding of the relations between institutions, contexts, and ethnic conflict. The following chapter discusses my theories and hypotheses.

Chapter 3: Theories and Hypotheses

In this chapter, I first discuss the implication of the theory of the ethnic security dilemma, in comparison with that of Lijphart's and Tsebelis' models of consensus democracy and veto player, respectively, about which types of institutions better solve the detrimental consequences resulting from the predicament. Building on the implication of the theory of the ethnic security dilemma, I rank each combination of government structures and electoral systems in order of their levels of power sharing. I then discuss how the number and spatial distribution of ethnic groups influence a system's effect on ethnic conflict; whether types of ethnic conflict constitute a factor in the desirability of institutional configurations; and how institutional configurations in turn affect the effects of the two contextual factors. Hypotheses are derived from these discussions.

3.1 The Ethnic Security Dilemma and Political Institutions

The ethnic security dilemma refers to competition for control of the government between ethnic groups. Ethnic groups compete for control because government is the greatest potential threat to any group inside a country, and ethnic groups fear that other groups who control the government will use state resources to act against them. This fear is mutually reinforcing and destructive: one group's attempt to control the government will strengthen others' fears and these other groups will respond with similar actions, and eventually every group is worse off because of irrational conflict. This security dilemma thesis suggests that "ethnic groups will be more secure if they have access to decision makers, if they can block harmful government policies, and if they can veto potentially damaging decisions" (Saideman et al. 2002: 107). Put differently, the theory of the ethnic security dilemma implies that ethnic groups will feel more secure and trustful and not

engage in more serious conflict in more-empowerment systems as indicated by those providing ethnic groups more power sharing, i.e. higher probabilities to influence policy-making.[56]

One caveat exists in this implication about the link between the degrees of power sharing and the levels of ethnic conflict. Arguably, ethnic majorities would prefer exclusive control over power. In polities with multiple ethnic groups, every group is a minority and desires more power sharing among groups. In polities with a numerically dominant group or with a proportionally disadvantaged but politically advantaged group, only dominated groups prefer power sharing, however. This dissertation focuses on how institutions influence *dominated groups'* conflicting behavior, so power sharing constitutes universal goods for every group discussed in this research. I will hereafter use the terms "ethnic groups," "minorities," and "dominated groups" interchangeably. However, when discussing the effects of the number of ethnic groups in a state, all groups count, be they minority or majority ones, and will be included in the calculation of the number of ethnic groups.

The implication of the theory of the ethnic security dilemma that systems guaranteeing ethnic groups higher probabilities to affect policy-making better address ethnic conflict is largely in accordance with "the empowerment literature" in American politics, which argues that empowerment (as indicated by, say, control of the mayor's office) influences black participation by contributing to a more trusting and efficacious orientation to politics (Bobo and Gilliam 1990). The implication of the theory of the ethnic security dilemma is also supported by the global evidence of ethnopolitical

[56] I define power sharing in this dissertation as "the sum of probabilities for ethnic minorities to influence policy-making."

violence that ethnic conflicts can usually be accommodated by some combination of the policies and institutions of power-sharing (Gurr 1993).

Furthermore, like the model of consensus democracy, the theory of the ethnic security dilemma emphasizes the importance of power sharing and dispersion. Unlike the model of consensus democracy (Lijphart 1999 and 2002), however, the theory of the ethnic security dilemma does not suggest that parliamentary systems are superior to presidential systems. Instead, the theory allows us to take the interactive effects of government structures, electoral systems and contextual factors more seriously.

Moreover, in accordance with the veto player model advocated by Tsebelis (1995 and 2002) and many other scholars, what I derive from the theory of the ethnic security dilemma acknowledges the effect of the number of veto players on policy making. Generally, the higher the number of veto players, the higher the level of power sharing. The number of veto player is, however, an end result of the interaction between government structures, electoral systems, and the contextual factor of group numbers. While the veto player approach relies on a composite index of the number of veto players, the implication of the theory of the ethnic security dilemma allows the attempt of this dissertation to unravel the effects of these institutional and contextual factors.

Furthermore, even when systems have the same number of veto players, such as a presidential system with a unified government and a parliamentary system with a two-party system, they could produce very different policy outcomes. The major characteristics of presidential systems, i.e. separation of power as well as checks and balances, make it possible that even with the presence of a unified government, executive and legislative branches will check and balance each other (Saideman et al. 2002). This possibility never exists in parliamentary systems with a two-party system. Some studies

also find that government structures still matter for the levels of the rule of law after controlling for the number of veto players (Andrews and Montinola, 2004), suggesting that government structures have other institutional distinctions that cannot be fully represented by the number of veto players. In sum, the veto player model cannot serve the purpose of this research because it relies on a composite index which downplays the distinctions between government structures to some extent.

In conclusion, for the interest of this research project, the theory of the ethnic security dilemma is theoretically less parametric than the model of consensus democracy and methodologically more useful than the model of veto player. In the following section, I rank each combination of government structures and electoral systems in terms of how well they solve the ethnic security dilemma.

3.2 The Desirability of Institutional Combinations

Before doing the ranking, a discussion about the validity of the postulation which makes ranking institutions a meaningful endeavor is necessary. What is implied in ranking each institutional configuration in order of the level of power sharing and in linking that ranking to the severity of ethnic conflict is the assumption that political parties or coalitions form along ethnic rather than other lines. In fact, most existing quantitative studies about how institutions manage ethnic conflict make this assumption implicitly, too (Cohen 1997; Norris 2002; Saideman et al. 2002). The common acceptance of this hypothesis suggests its plausibility for many scholars and the absence of data which can be used to distinguish ethnically divided countries where political parties or coalitions form alone ethnic lines from those where other lines of cleavages determine political competition.

Furthermore, Bates (1983) provides two explanations as to why the assumption holds. First, shared language and culture make it easier for political elites to mobilize intragroup rather than across ethnic groups. Second, ethnic and colonial administrative boundaries tend to overlap, and modern goods like electricity, schools, and water projects tend to benefit people in a particular region. Fearon (1999) offers another explanation. He argues that distributive politics on a mass scale favor coalitions based on hardly changeable individual characteristics. Changeable characteristics would allow the expansion of the winning coalition and, hence, less pork per coalition member. In countries where what is on the agenda is about the distribution of pork rather than the choice among the types of policy from a continuum (such as policy on abortion), more ethnic and less ideological politics can be expected. Fearon eloquently explain why pork and ethnic politics tend to go together. Sometimes, issue-based goods and ethnic politics are seen to go together as well, however,[57] suggesting more prevalence of ethnic politics in the world than Fearon expects.

In sum, in this dissertation I depend on the same postulation that political parties or coalitions form along ethnic rather than other cleavages to discuss the effects of government structures and electoral systems because of the following reasons: most students in the large-N studies of the effects of institutions on ethnic conflict rely on the same assumption; many scholars offer plausible explanations about the validity of the hypothesis; and there exists no data to date which help distinguish countries where political parties or coalitions form alone ethnic lines from those where other lines of cleavages determine political competition.[58] Empirically, I will test whether this

[57] One example is Taiwan where the issue of independence versus unification dominates the orientation of party competition between ethnic groups.

[58] Other distinctions, such as whether a state experiences a change in the line of party competition, cannot

assumption influences the estimates of the variables of interest in Chapter 5, however.

My paper identifies six possible combinations of government structures (presidential, semi-presidential, and parliamentary) and electoral systems (PR and SMD),[59] which promote different levels of power sharing, a topic to which I now turn.

A combination of parliamentary and PR systems, which exists in many western European countries, provides the highest level of power sharing among all the institutional configurations, especially when grand coalitions or at least oversized coalitions are formed. A PR system permits proportional representation of each group and tends to produce multiparty systems, a major hypothesis "made famous by Duverger (1963) which has remained remarkably intact after decades of empirical testing" (Moser 1999: 359).[60] Given the existence of multiparty systems, a parliamentary system, which is characterized by fusion of power (Samuels 2002, Stepan and Skach 1993), further makes possible the formation of a coalition government as well as executive and legislative power sharing. It is estimated that among countries which do not have majority parties in their parliaments, a very likely condition when PR systems are in use, almost 72% of their cabinets have more than one party as cabinet members. Among them,

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be made, either, due to lack of data.

[59] Although some scholars doubt the adequacy of the presidential, semi-presidential, and parliamentary distinction (Siaroff 2003), most scholars think that the distinction is legitimate and an important determinant for democratic stability, representation, and accountability (Samuels 2002 and 2004; Samuels and Shugart 2003). Furthermore, Siaroff's research exhibits serious methodological problems, which makes his conclusion dubious to a certain extent, because he relies on only dichotomous measurements of proactive presidential powers. Many presidents have reactive power, however. Moreover, presidential powers arguably should be a continuous variable.

[60] Through case studies of Postcommunist states, Moser finds that "plurality and majoritarian elections can produce very fragmented party systems, suggesting that the reach of Duverger's laws may be limited" (Moser 1999: 360) However, it is still unclear how far the reach is limited. Here I follow Duverger's law in discussing the effects of electoral systems, but will take into account the impact of the number and spatial distribution of ethnic groups in the later section. It should suffice to mention a supposition underlying Duverger's Law: "Duverger's Law holds only if the social cleavage structure is not characterized by geographically concentrated minorities who might form the basis of a successful, albeit localized, third party" (Cox 1997: 24-25). This supposition explains why, for example, Canada has simple plurality elections but a long-standing multiparty system.

however, about six-tenth are either minority coalitions or minimal winning coalitions (Lijphart 1999), suggesting that parliamentary-PR arrangements do not always promote power sharing between all the groups in a state. Regardless, this institutional configuration does guarantee power sharing between many groups and quite often (in four out of ten cabinets) between almost all the groups in a polity. This combination thus outperforms any other configurations.

The combination of presidential and SMD systems offers the second highest level of power sharing among all the systems. In addition to mostly concentrated executive power in a presidency, this combination is less likely to provide legislative power sharing because of the adoption of SMD systems, which tend to produce two party systems (Duverger 1963), and, consequently, a single party majority in a parliament. However, there is one important merit of this institutional combination, i.e. complete separation of executive and legislative powers. When different parties win presidential and legislative elections, they check and balance each other. The policy output will be close to the social median. Even when one party wins both presidential and legislative elections, separation of power prohibits one party's total control of executive and legislative power without any checks and balances (Saideman et al. 2002).

The combination of semi-presidential and SMD systems also ranks second. Legislative power sharing is less likely because of SMD arrangements. As for executive power, when a majority party and a president's party coincide, one party controls both branches' power. The characteristic of dual executive in semi-presidential systems and its effect on executive power sharing become less meaningful for rival groups. When a president's party does not control a majority in parliament, the rival party controls both legislative and most executive powers, with at most "reserve domains" such as foreign

and defense policy left to a president (Shugart and Carey 1992). Regardless, this combination provides no legislative power sharing and its executive power sharing is at best limited. Furthermore, compared to presidential systems, semi-presidential systems have only incomplete checks and balances because their presidents usually possess the power of dissolving parliaments. Because of this presidential power, which is often constrained to a certain extent (Shugart and Carey 1992; Shugart 1996), the total independence of origin and survival, and consequently, the complete checks and balances between branches, disappears.[61] While the negative effect of this presidential power is likely to be canceled out when conditions do not favor the dissolution of a parliament for a president, an ambitious president would always grasp or even create an opportunity to dissolve an unfriendly parliament in order to maximize the odds of his (or his party's) re-election. In sum, although this combination is inferior to presidential-SMD systems in one aspect (incomplete checks and balances), it is superior in another aspect (more executive power sharing), and consequently, the two combinations display a similar level of power sharing.

Semi-presidential-PR systems come third in the ranking and exist mostly in Eastern European countries. As aforementioned, a critical feature of semi-presidential systems, dual executives, indicates that executive power is always shared by a president and a premier (and their respective groups) to a certain extent. However, while a PR system tends to produce multiparty systems, coalition cabinets,[62] and divided governments (because it is less likely that a president's party would win a majority of seats under a PR system), and is therefore conducive to executive and legislative power sharing among

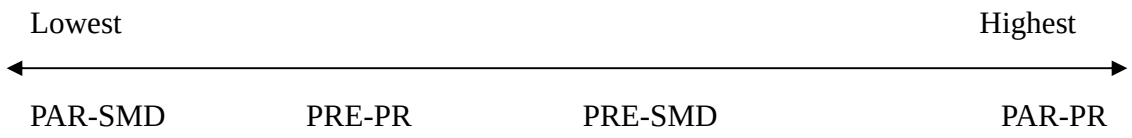
[61] This is why Lijphart and his associates (1993) regard semi-presidential systems as systems of semi-separation of powers.

[62] In comparison with presidential systems, allowing the formation of coalition cabinets is a characteristic of semi-presidential systems, as aforementioned.

ethnic groups, it also increases the possibility of a president's (and his group's) dominance of power vis-à-vis a premier and a parliament. The reason why there is possibly an unbalanced power relationship is that a fragmented parliament motivates and helps a semi-president compete with and act against it for more control of executive power. Facing such a weak, fragmented parliament, ambitious semi-presidents become dominant as shown in many semi-presidential systems, such as Weimar Germany, Poland, Russia, and Taiwan (Wu 1998; Lee 2001). Furthermore, this combination does not provide completely mutual independence between branches in that a president in semi-presidential systems can dissolve a parliament, with different constraints across countries. A parliament's dependence on a president's confidence is likely to cause incomplete checks and balances between branches, making an already dominant president even more overwhelming. In sum, the high levels of executive and legislative power sharing as well as some checks and balances this institutional combination seems to provide should not be taken at face value. A dominant president vis-à-vis a fragmented parliament makes these favorable conditions almost meaningless.

Together with semi-presidential-PR, presidential-PR systems rank third. Many Latin American and Sub-Saharan ethnic groups live under this system. Some scholars show that the performance of presidential-PR systems with regard to managing ethnic cleavages is quite positive (Lijphart et al. 1993), although these systems have been criticized for their difficulty in dealing with economic problems (Bernhard et al. 2001). Considering Lijphart's disregard for the fact that many Latin American countries have only socially, instead of politically, relevant ethnic groups (Fearon 2007), his finding that presidential-PR systems manage ethnic cleavages quite well becomes questionable. It may not be the political institutions that explain peaceful ethnic relations in Latin

Figure 3.1: Levels of power sharing of political institutions*



* PAR and PRE stand for the categories of parliamentary and presidential systems, respectively. The term "presidential systems" has been used in this dissertation to denote both presidential and semi-presidential systems, as mentioned in Chapter 1.

America. Instead, the almost no occurrence of violent ethnic conflict in the continent superficially makes political institutions seem to be the reason. Although a presidential-PR system has legislative power sharing because of its PR characteristics and complete checks and balances because of its presidential structures (Shugart and Carey 1992; Saideman 2002), its president can easily dominate because of a fragmented parliament s/he faces. In sum, like semi-presidential-PR systems, presidential-PR systems hamper meaningful power sharing and reduce the sum of the probabilities for ethnic groups to influence policy-making because of presidents' dominance over fragmented and, hence, feeble parliaments.

The most unfortunate system from the perspectives employed here is the Westminster model of democracy which consists of parliamentary and SMD systems. Many western European, Asian, and Northern African ethnic groups live under this system. This system is well-known for its majoritarian tendency (Mainwaring and Shugart 1997), which results from the fact that SMD systems tend to produce a single party majorities. This single party majority then controls both executive and legislative powers without any checks and balances, because of the core characteristic of parliamentary systems, the fusion of power. Undoubtedly, this most majoritarian combination is least likely to reduce ethnic conflict. Figure 3.1 summarizes the levels of

power sharing of every combination of government structures and electoral systems in a spectrum.

3.3 Taking the Number and Spatial Distributions of Ethnic Groups Seriously

This discussion does not suggest that all divided societies should choose parliamentary-PR systems which provide the highest level of power sharing. We should bear in mind that the theory of the ethnic security dilemma is all about enhancing the perceptions of security held by ethnic groups in order to avoid their mutually reinforcing, irrational competition and conflict. To limit the feeling of threat requires institutions which best meet the needs of a specific divided society.

There are two important considerations about the structure of a divided society: the number and spatial distribution of its ethnic groups (Reilly and Reynolds 1999). It would be unwise to adopt a parliamentary system when there are only two major ethnic groups. When only two major rival groups exist in a state, it will be very unlikely that they will form a coalition. This is true even if a PR system is in use and a multiparty system emerges because the original bipolar structure of a society still persists. Without a coalition government, a parliamentary system does not promote power sharing (Mainwaring and Shugart 1997), and consequently, security and peace.

Furthermore, when ethnic groups are concentrated and hence more likely to engage in conflict (Gurr 1993; Byman 1997; Ayres and Saideman 2000; Saideman and Ayres 2001; Toft 2003), a fairer PR system, which helps prevent grievances and ethnic conflict, is required. Some may doubt the effect of a PR system for concentrated groups, however, since their geographic concentration may bring more seats when a SMD system is used. Three reasons explain why a PR system may outperform a SMD system for concentrated

groups.

First, if a minority group is concentrated totally in one region together with other groups, they will tend to prefer a PR system to obtain more proportional seat shares and to avoid unfair bonus seats awarded to other bigger groups within the region, be they minority or majority groups. Among the groups which are covered in this dissertation and have the record of their regional populations, almost a half of them concentrating totally in one region live with other ethnic groups and do not control a majority of the population in the region. Among these groups, about 76% of them are so small that they have smaller than 26% of the region populations. Second, even for the other half groups which constitute a majority of the population in the region in which they reside, they may not desire a SMD system. On the one hand, some of these groups make up such an overwhelming majority of the region population that a SMD system does not differ much from a PR system. On the other hand, these regional majority groups may at least consider a PR system fair because of the proportionality it promotes or even prefer a PR system when the region they inhabit is only a part of an election district in which they lose their majority advantage. Third, if a group not only concentrates some of its members in one region, but also has (more) others spreading out in other parts of a state, then a SMD system would help the group win extra seats in the region where they have a population advantage, but hurt their elections in other regions where they do not enjoy the lead. About one-third of concentrated minority groups fit into this category. Overall, a SMD system may do more harm than good for these groups' election gains. Because of these reasons, a PR system will generally be more desirable for most concentrated groups as many scholars believe.

In this dissertation, I assume that every concentrated group prefers a PR system

regardless of the fact that for some of them who are concentrated completely in one region and enjoy a majority of the region's population, a SMD system may be equally, if not more, advantageous. While this disregard is due to the absence of data about the true preference of this type of group, it will make the estimate of the effects of PR systems more conservative. Put differently, the assumption that many scholars and I make about the preference of concentrated groups for PR systems when in fact some of them are indifferent between PR and SMD systems will help me more easily falsify, not verify, my hypotheses. The rate of rejecting the null hypothesis that PR systems make no difference when the hypothesis is true will be highly decreased.

Most major hypotheses can be drawn based on the two principles that a presidential and a PR system works for societies with two groups and for groups with concentrated geographic distributions, respectively. For a concentrated group facing only a rival group in a state, presidential-PR systems work best to provide them a sense of security and prevent them from showing on the battlefield.

For concentrated groups, only when they coexist with multiple rival groups in their country, a condition that makes inter-group cooperation and coalition cabinets becomes required in order to reach a majority status in a parliament, do parliamentary-PR systems possibly serve as one of the best institutional devices. The other preferable arrangement is a presidential-SMD system. This combination seems to violate the aforementioned two principles that a presidential and a PR system works for societies with two groups and for groups with concentrated geographic distributions, respectively. However, parliamentary-PR systems do not always promote power sharing between all the groups in a state. For states having more than two groups (and, hence, no majority groups), presidential-SMD systems ensure that the parties of their presidents will almost always

not control the majority status of their parliaments and have to face divided governments. Checks and balances between all the groups constitute the norm of politics in these systems, which thus represent an equally, if not more, attractive institutional configuration as parliamentary-PR systems.

Two possibilities exist when ethnic groups have dispersed distributions. Some scholars argue that when countries have highly intermixed patterns of ethnic settlement, even single-member districts are likely to be ethnically heterogeneous (Reilly and Reynolds 1999). This feature will encourage most, if not all, candidates to move to more moderate positions in order to win majority support, or will promote the development of multiethnic parties. Put differently, a SMD system is likely to marginalize ethnic division and ameliorate interethnic antagonisms in such patterns of ethnic distributions (Reilly and Reynolds 1999).

These patterns of ethnic settlement hardly exist in the real world, however. Few, if any, countries have only ethnic groups which are spread out, a condition that makes ethnic settlement to be highly intermixed. Concentrated groups are less likely to accept a SMD arrangement. Even if they do, their concentrated distributions would very possibly provide their candidates enough votes for winning elections in quite a few districts. If so, this resource would discourage some candidates to become more moderate in order to attract other groups' votes. If the candidates of concentrated groups continue appealing to their own members and the identity of concentrated groups keeps politicized, it is impractical to expect that the elites of dispersed groups would not do the same and their members would give up their identity altogether. This grim picture remains even when these dispersed groups unite as multiethnic parties and form broader identity.

Table 3.1: Number and Spatial Distribution of Ethnic Groups, and Appropriate Institutions

	Facing One Rival Group		Facing Multiple Rival Groups	
Concentrated Groups	Type 1: PAR-PR	Type 2: PRE-PR	Type 5: PAR-PR	Type 6: PRE -PR
	Type 3: PAR-SMD	Type 4: PRE -SMD	Type 7: PAR-SMD	Type 8: PRE -SMD
Dispersed Groups	Type 9: PAR-PR	Type 10: PRE -PR	Type 13: PAR-PR	Type 14: PRE -PR
	Type 11: PAR-SMD	Type 12: PRE -SMD	Type 15: PAR-SMD	Type 16※: PRE -SMD

* Types in gray areas represent appropriate institutions for a specific context. The gray color for spatially dispersed groups is lighter because the effects of institutions for these subjects may be insignificant.

※ There are no observations of Type 16 in the data set of this dissertation.

Another condition makes countries have highly intermixed ethnic settlement. If most groups in a state are spread out and only a few are concentrated, then SMD systems may benefit the ethnic relations of the state in question. However, no related empirical evidence exists. Saideman and his colleagues (2002) even find that concentrated and dispersed groups alike engage in less intense conflict when PR systems are in use. In sum, one possibility when ethnic groups are spread out is that what better meets the needs of concentrated groups also better serves the interests of dispersed groups.

On the other hand, other scholar's recent work implies no effects of institutions when ethnic groups are spread out and therefore less motivated and capable of engaging in ethnic conflict (Gurr 1993; Byman 1997; Ayres and Saideman 2000; Saideman and Ayres 2001; Toft 2003). The other possibility, when ethnic groups are spatially dispersed,

is that institutions do not make a difference. I will test these two competing notions in my paper.

Table 3.1 presents what I just discussed and also the 16 possible combinations of the institutional and contextual factors. Up to this point, I have not touched upon whether specific types of ethnic conflict require different preventive institutional frameworks as some scholars assert. This is the topic to which I now turn.

3.4 The Types of Ethnic Conflict

Ethnic conflict can be manifested violently or peacefully. Many scholars believe that institutions with a higher level of power sharing help ameliorate ethnic violence, but they have different views about the effects of institutions on nonviolent ethnic conflict. Furthermore, these opposite arguments suffer from either seeming inconsistency of their internal logic or lack of appropriate hypothesis testing, making both of the arguments less convincing.

For example, Cohen (1997) argues that under proportional arrangements, conflict is likely to take more frequent but nonviolent forms due to the institutional means available and accessible to dissatisfied minorities. He, however, hypothesizes that the greater the degree of electoral PR in the system, the higher the degree of low-level ethnic conflict. There is an obvious gap between his argument and hypothesis. While he claims that proportional arrangements are likely to relate to *more frequent* nonviolent ethnic conflict, he tests the link between *the level* of nonviolent ethnic conflict and institutional arrangements. To test his *theory*, Cohen should not depend on the nonviolent protest variable of the Minorities at Risk dataset which is essentially about the intensity, not the frequency, of the variable in question. Consequently, his interpretation of the results that

electoral PR generates neither increases nor decreases in the *incidence* of low-level ethnic conflict is simply wrong. The empirical finding that nonviolent conflict is neither more nor less serious when proportional institutions are used is left unexplained theoretically.

Contrary to Cohen's argument that a PR system leads to more frequent nonviolent conflict, Saideman et al. (2004) claim that less and smaller protest by groups should be seen in states where a PR electoral system is employed. Under such a system minorities will generally have a better chance to achieve representation, and thus get their demands heard, without mobilizing in the streets. They, however, also assert that "protests are relatively short-term events…. We should expect more and bigger protests when circumstances aggravate a group's sense of grievance and when conditions are most favorable to mass mobilization." As aforementioned, while likely, institutional reforms rarely take place. Given this fact, it remains unclear how relatively stable institutions explain the fluctuating pattern of protests within a state based on the seemingly contradictory logic of Saideman and his associates. To solve the puzzle, I would argue that while relatively stable institutions may not explain such fluctuating phenomenon as protests within a polity, they can explain the average cross-sectional differences. Although the level of protests may change over time within a state, it is more likely for some political systems to experience bigger protests than other systems on average.

In terms of the frequency of protest, both the arguments of Cohen and Saideman and his associates seem plausible. In terms of reducing the intensity of conflict, however, there is no reason to expect that whether conflict is violent or nonviolent will make a difference.[63] Some systems better address a group's sense of grievance and, hence, better

[63] It should be noted that, when the effects of government structures are concerned, Saideman and his associates in fact think that different forms of governments, indicated by whether election calendar is fixed or not, become more attractive depending on whether nonviolent protest or violent rebellion is in question.

prevent the escalation of ethnic conflict, regardless of whether ethnic groups manifest that violently or nonviolently. Put differently, the argument of Saideman and his colleagues makes more sense that bigger protests should be expected when circumstances, such as the use of disproportional SMD systems, aggravate a group's sense of grievance.

When its impact on democracy is concerned, however, nonviolent protest differs from violent conflict significantly. A democracy requires constant input from its society to sustain its functioning and survival. Nonviolent protest also serves as a major means people need and use to make their voice heard in a democracy. It is thus not coincidental that most democracies protect individuals' right to legally and nonviolently protest, regardless of whether they are presidential, semi-presidential, or parliamentary democracies as well as whether they use PR or SMD systems. Because of this common protection in democracies and the positive side of protest, while it can be expected that some institutions better reduce the level of nonviolent conflict than others, the difference of the effects should be less substantial.

Violent conflict, on the other hand, contributes nothing good to the functioning of a democracy. Democracies generally do not allow such conflict to take place, regardless of which government structures and electoral systems they use. People in democracies usually do not ask for more rights or fairer treatments by engaging in violent conflict, either. These facts imply that there exist no counteracting forces that change or offset the differences between the effects of institutions on ethnic violence. In sum, I expect to find similar empirical patterns about the link between institutions and ethnic conflict, be it violent or nonviolent. The relation between nonviolent conflict and institutions will

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Their thoughts do not hold up in their testing results, however. Instead, the estimate of election calendar show that presidential systems, indicated by fixed calendar, better reduce both violent and nonviolent ethnic conflict, although the effect on nonviolent protest is insignificant.

Table 3.2: The Best Institutional Design
for a Spatially Concentrated group Facing Only One Rival Group

	Facing One Rival Group	
Concentrated Groups	Type 1: PAR-PR	Type 2: PRE-PR (Best)
	Type 3: PAR-SMD	Type 4: PRE-SMD

* Types in gray areas represent appropriate institutions for a specific context.

generally be weaker, however.

3.5 The Impact of Political Institutions

Based on Table 3.1 as well as the similarities and differences between violent and nonviolent ethnic conflict, I derive several hypotheses about the effects of institutions. To discuss these hypotheses more effectively, I replicate and divide Table 3.1 into three sub-tables, Tables 3.2-3.4.

3.5.1 Concentrated Groups Facing One Rival Group

As Table 3.2 shows, for concentrated minority groups facing only one opposition group, ceteris paribus, presidential-PR systems outperform other institutions in providing them more influence in policy making. Fairer PR systems help reduce the likelihood of conflict engaged in by such groups while presidential systems help prohibit the possibility of dominant groups' total control of power and reduce the propensity of dominated groups in question to fight. This argument applies to both violent and nonviolent ethnic conflict, but more so to the former case.

Hypothesis 1a: In cases involving a concentrated minority group facing only one

opposition group, ceteris paribus, the expected level of *violent* rebellion is less intense in countries with presidential and PR systems than in countries with most, if not all, of the other institutional configurations.

Or equivalently, I expect to find most, if not all, of the following research hypotheses to be true.

$$\text{H1a(1)} : E(\text{Reb} \mid \text{Type} = 2; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 1; \bar{\mathbf{x}}_c)$$
$$\text{H1a(2)} : E(\text{Reb} \mid \text{Type} = 2; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 3; \bar{\mathbf{x}}_c)$$
$$\text{H1a(3)} : E(\text{Reb} \mid \text{Type} = 2; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 4; \bar{\mathbf{x}}_c)$$

where Reb is the abbreviation for "rebellion," and $\bar{\mathbf{x}}_c$ represent the sample means of the control variables of this dissertation.

Hypothesis 1b: In cases involving a concentrated minority group facing only one opposition group, ceteris paribus, the expected level of *nonviolent* ethnic conflict is less intense in countries with presidential and PR systems than in countries with some of the other institutional configurations.

Or equivalently, I expect to find at least one of the following research hypotheses to be true.

$$\text{H1b(1)} : E(\text{Prot} \mid \text{Type} = 2; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 1; \bar{\mathbf{x}}_c)$$
$$\text{H1b(2)} : E(\text{Prot} \mid \text{Type} = 2; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 3; \bar{\mathbf{x}}_c)$$
$$\text{H1b(3)} : E(\text{Prot} \mid \text{Type} = 2; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 4; \bar{\mathbf{x}}_c)$$

3.5.2 Concentrated Groups Facing Multiple Rival Groups

As Table 3.3 shows, for concentrated minority groups facing multiple rival groups, ceteris paribus, parliamentary-PR and presidential-SMD systems better alleviate ethnic conflict. These institutional configurations ensure that the groups in question will be less likely to engage in conflict because more groups either share both executive and legislative powers or check and balance one another. Accordingly, they lack or reduce

Table 3.3: The Best Institutional Design
for a Spatially Concentrated group Facing Multiple Rival Groups

	Facing Multiple Rival Groups	
Concentrated Groups	Type 5: PAR-PR (Best)	Type 6: PRE-PR
	Type 7: PAR-SMD	Type 8: PRE-SMD (Best)

* Types in gray areas represent appropriate institutions for a specific context.

incentives to engage in conflict. This notion applies to both violent and nonviolent ethnic conflict, but more so to violent conflict.

Hypothesis 2a: In cases involving a concentrated minority group facing multiple rival groups, ceteris paribus, the expected level of *violent* ethnic conflict is less intense in countries with parliamentary-PR or with presidential-SMD systems than in countries with the other institutional configurations.

Or equivalently, I expect to find most, if not all, of the following research hypotheses to be true.

$$\text{H2a(1)} : E(\text{Reb} \mid \text{Type} = 5; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 6; \bar{\mathbf{x}}_c)$$
$$\text{H2a(2)} : E(\text{Reb} \mid \text{Type} = 5; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 7; \bar{\mathbf{x}}_c)$$
$$\text{H2a(3)} : E(\text{Reb} \mid \text{Type} = 8; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 6; \bar{\mathbf{x}}_c)$$
$$\text{H2a(4)} : E(\text{Reb} \mid \text{Type} = 8; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 7; \bar{\mathbf{x}}_c)$$

Hypothesis 2b: In cases involving a concentrated minority group facing multiple rival groups, ceteris paribus, the expected level of *nonviolent* ethnic conflict is less intense in countries with parliamentary-PR or with presidential-SMD systems than in countries with the other institutional configurations.

Or equivalently, I expect to find at least one of the following research hypotheses to be true.

Table 3.4: The Best Institutional Design
for Spatially Dispersed Groups

	Two Groups		Multiple Groups	
Dispersed Distributions	Type 9: PAR-PR	Type 10 (Best): PRE-PR	Type 13 (Best): PAR-PR	Type 14: PRE-PR
	Type 11: PAR-SMD	Type 12: PRE-SMD	Type 15: PAR-SMD	Type 16 (Best) ※: PRE-SMD

* Types in gray areas represent appropriate institutions for a specific context.
※ There are no observations of Type 16 in the data set of this dissertation, so I cannot test any hypotheses involving Type 16.

$$\text{H2b(1)} : E(\text{Prot} \mid \text{Type} = 5; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 6; \bar{\mathbf{x}}_c)$$
$$\text{H2b(2)} : E(\text{Prot} \mid \text{Type} = 5; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 7; \bar{\mathbf{x}}_c)$$
$$\text{H2b(3)} : E(\text{Prot} \mid \text{Type} = 8; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 6; \bar{\mathbf{x}}_c)$$
$$\text{H2b(4)} : E(\text{Prot} \mid \text{Type} = 8; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 7; \bar{\mathbf{x}}_c)$$

3.5.3 Dispersed Groups

As Table 3.4 shows, there are two possibilities for spatially dispersed ethnic groups. First, what works best for concentrated groups also works best for dispersed groups, holding the number of rival groups they face and all the other relevant variables constant. Second, no particular institutions better furnish dispersed minorities with a sense of security, ceteris paribus. Dispersed minorities have neither legitimacy nor capability to fight for their rights; such groups are essentially more peaceful and institutional design is simply irrelevant to them. These opposite arguments lead to the following competing hypotheses.

Hypothesis$_{null}$ 3a: In cases involving a spatially dispersed minority group facing only one opposition group, ceteris paribus, the expected level of *violent* conflict is neither less nor more intense in any countries.

Hypothesis$_{\text{alternative}}$ 3a: In cases involving a spatially dispersed minority group facing only one opposition group, ceteris paribus, the expected level of *violent* conflict is less intense in countries with presidential and PR systems than in countries with most, if not all, of the other institutional configurations.

Or equivalently, I expect to find either the null hypotheses

$$H_{\text{null}}\ 3a(1)\ : E(\text{Reb} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) = E(\text{Reb} \mid \text{Type} = 9;\ \bar{\mathbf{x}}_c)$$
$$H_{\text{null}}\ 3a(2)\ : E(\text{Reb} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) = E(\text{Reb} \mid \text{Type} = 11;\ \bar{\mathbf{x}}_c)$$
$$H_{\text{null}}\ 3a(3)\ : E(\text{Reb} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) = E(\text{Reb} \mid \text{Type} = 12;\ \bar{\mathbf{x}}_c)$$

or the alternative hypotheses, to be true.

$$H_{\text{alternative}}\ 3a(1)\ : E(\text{Reb} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 9;\ \bar{\mathbf{x}}_c)$$
$$H_{\text{alternative}}\ 3a(2)\ : E(\text{Reb} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 11;\ \bar{\mathbf{x}}_c)$$
$$H_{\text{alternative}}\ 3a(3)\ : E(\text{Reb} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 12;\ \bar{\mathbf{x}}_c)$$

Hypothesis$_{\text{null}}$ 3b: In cases involving a spatially dispersed minority group facing only one opposition group, ceteris paribus, the expected level of *nonviolent* conflict is neither less nor more intense in any countries.

Hypothesis$_{\text{alternative}}$ 3b: In cases involving a spatially dispersed minority group facing only one opposition group, ceteris paribus, the expected level of *nonviolent* conflict is less intense in countries with presidential and PR systems than in countries with some of the other institutional configurations.

Or equivalently, I expect to find either the null hypotheses

$$H_{\text{null}}\ 3b(1)\ : E(\text{Prot} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) = E(\text{Prot} \mid \text{Type} = 9;\ \bar{\mathbf{x}}_c)$$
$$H_{\text{null}}\ 3b(2)\ : E(\text{Prot} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) = E(\text{Prot} \mid \text{Type} = 11;\ \bar{\mathbf{x}}_c)$$
$$H_{\text{null}}\ 3b(3)\ : E(\text{Prot} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) = E(\text{Prot} \mid \text{Type} = 12;\ \bar{\mathbf{x}}_c)$$

or the alternative hypotheses, to be true.

$$H_{\text{alternative}}\ 3b(1)\ : E(\text{Prot} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 9;\ \bar{\mathbf{x}}_c)$$
$$H_{\text{alternative}}\ 3b(2)\ : E(\text{Prot} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 11;\ \bar{\mathbf{x}}_c)$$
$$H_{\text{alternative}}\ 3b(3)\ : E(\text{Prot} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 12;\ \bar{\mathbf{x}}_c)$$

Hypothesis$_{\text{null}}$ 4a: In cases involving a spatially dispersed minority group facing

multiple rival groups, ceteris paribus, the expected level of *violent* conflict is neither less nor more intense in any countries.

Hypothesis$_{\text{alternative}}$ 4a: In cases involving a spatially dispersed minority group facing multiple rival groups, ceteris paribus, the expected level of *violent* conflict is less intense in countries with parliamentary-PR than in countries with presidential-PR or parliamentary-SMD systems.

Or equivalently, I expect to find either the null hypotheses

$$H_{\text{null}}\ 4a(1)\ : E(\text{Reb} \mid \text{Type} = 13;\ \bar{\mathbf{x}}_c) = E(\text{Reb} \mid \text{Type} = 14;\ \bar{\mathbf{x}}_c)$$
$$H_{\text{null}}\ 4a(2)\ : E(\text{Reb} \mid \text{Type} = 13;\ \bar{\mathbf{x}}_c) = E(\text{Reb} \mid \text{Type} = 15;\ \bar{\mathbf{x}}_c)$$

or the alternative hypotheses, to be true.

$$H_{\text{alternative}}\ 4a(1)\ : E(\text{Reb} \mid \text{Type} = 13;\ \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 14;\ \bar{\mathbf{x}}_c)$$
$$H_{\text{alternative}}\ 4a(2)\ : E(\text{Reb} \mid \text{Type} = 13;\ \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 15;\ \bar{\mathbf{x}}_c)$$

Hypothesis$_{\text{null}}$ 4b: In cases involving a spatially dispersed minority group facing multiple rival groups, ceteris paribus, the expected level of *nonviolent* conflict is neither less nor more intense in any countries.

Hypothesis$_{\text{alternative}}$ 4b: In cases involving a spatially dispersed minority group facing multiple rival groups, ceteris paribus, the expected level of *nonviolent* conflict is less intense in countries with parliamentary-PR than in countries with presidential-PR or parliamentary-SMD systems.

Or equivalently, I expect to find either the null hypotheses

$$H_{\text{null}}\ 4b(1)\ : E(\text{Prot} \mid \text{Type} = 13;\ \bar{\mathbf{x}}_c) = E(\text{Prot} \mid \text{Type} = 14;\ \bar{\mathbf{x}}_c)$$
$$H_{\text{null}}\ 4b(2)\ : E(\text{Prot} \mid \text{Type} = 13;\ \bar{\mathbf{x}}_c) = E(\text{Prot} \mid \text{Type} = 15;\ \bar{\mathbf{x}}_c)$$

or the alternative hypotheses, to be true.

$$H_{\text{alternative}}\ 4b(1)\ : E(\text{Prot} \mid \text{Type} = 13;\ \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 14;\ \bar{\mathbf{x}}_c)$$
$$H_{\text{alternative}}\ 4b(2)\ : E(\text{Prot} \mid \text{Type} = 13;\ \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 15;\ \bar{\mathbf{x}}_c)$$

Up to this point, all the discussion focuses on the effects of institutions, including

how they are influenced by the number and spatial distribution of ethnic groups as well as whether different types of ethnic conflict require divergent preventive institutions. If the number and spatial distribution of ethnic groups affect institutions' effects on ethnic conflict, then institutional configurations also influence how the two contextual factors affect ethnic conflict. This symmetry is the defining feature of any interactive effects. In the following section, I discuss this other side of the story.

Before moving to the next section, it should be noted that while institutions have more effects on violent than on nonviolent conflict intensity, all groups covered in this study are big enough to engage in either type of clashes when they see fit, regardless of how many rival groups they face.[64] Furthermore, concentrated groups have higher legitimacy and capability to fight for power both violently and peacefully than their dispersed counterparts. The type of ethnic conflict is therefore irrelevant when discussing the effects of the number and spatial distribution of ethnic groups.

3.6 The Other Side of the Story: the Effects of the Two Contextual Factors

As discussed in the previous chapter, cross-national studies have found no more occurrences or severity of ethnic violence in more diverse countries (Fearon and Laitin 2003; Collier et al. 2004; Lacina 2004). While some scholars quickly conclude that ethnic diversity does not matter, others argue that only when we consider other factors which influence the effects of ethnic fractionalization does the impact in question become clear. I take this latter viewpoint.

When it comes to the effect of the spatial distributions of ethnic groups, dispersed

[64] All the groups studied in this dissertation have nontrivial populations that can be mobilized and organized to engage in insurgency or protest. In fact, under right conditions, all successful insurgency needs are only small numbers of rebels (Fearon and Laitin 2003). Please refer to the next chapter for details about the populations of the groups covered in this dissertation.

groups are believed to be more peaceful than concentrated groups. When living in a state with inappropriate institutional arrangements, dispersed groups can become more combative, however. To unravel the impact of such a contextual factor also requires taking institutions more seriously.

In this section, I will first discuss how the number of ethnic groups influences ethnic conflict, given certain government structures, electoral systems, and spatial distributions of ethnic groups. I will then link the spatial distributions of ethnic groups to ethnic conflict, controlling for the interactions between this contextual factor and the two institutional variables.

3.6.1 The Impact of Ethnic Diversity

3.6.1.1 Concentrated Groups under Parliamentary-PR Systems

One main argument in this dissertation is that only with the presence of more than two ethnic groups do parliamentary systems possibly contribute to power sharing because such ethnic profiles make the formation of a coalition cabinet more likely. For the members of a coalition, they share both executive and legislative powers. For those outside a coalition, they influence policy-making by initiating a no-confidence vote or simply by threatening to do so when they see divisions and quarrels within the coalition. Since a coalition cabinet tends to be less stable, its members generally take more seriously the needs and preferences of the parties outside a coalition. Conversely, the presence of only two groups in a parliamentary-PR system usually leads to a one-party (or one-group) majority cabinet, which the other major ethnic group finds very hard to challenge. In sum, since the existence of multiple groups in parliamentary-PR systems favors the formation of a coalition cabinet, which better ensures for all the ethnic groups

in a state a certain sense of security, be they a member of the coalition or not, I expect to find Hypothesis 5a and Hypothesis 5b to be true.

Hypothesis 5a: In cases involving a concentrated ethnic group living in parliamentary-PR systems, ceteris paribus, the expected level of *violent* conflict is less intense in countries having more than two ethnic groups than in those with only two groups.

Hypothesis 5b: In cases involving a concentrated ethnic group living in parliamentary-PR systems, ceteris paribus, the expected level of *nonviolent* conflict is less intense in countries having more than two ethnic groups than in those with only two groups.

Or equivalently, I expect to find the following research hypotheses to be true.

$$\text{H5a} : \text{E}(\text{Reb} \mid \text{Type} = 5; \bar{\mathbf{x}}_c) < \text{E}(\text{Reb} \mid \text{Type} = 1; \bar{\mathbf{x}}_c)$$
$$\text{H5b} : \text{E}(\text{Prot} \mid \text{Type} = 5; \bar{\mathbf{x}}_c) < \text{E}(\text{Reb} \mid \text{Type} = 1; \bar{\mathbf{x}}_c)$$

3.6.1.2 Dispersed Groups under Parliamentary-PR Systems

The same logic in contrasting Type 1 with Type 5 applies to the comparison here and provides the alternative hypotheses 6a and 6b. Dispersed groups are also believed to be less motivated and less capable of engaging in conflict, however, regardless of how many rival groups they face. This competing notion offers the following null hypotheses.

$\text{Hypothesis}_{\text{null}}$ 6a: In cases involving a dispersed ethnic group living in parliamentary-PR systems, ceteris paribus, the expected level of *violent* conflict is similar regardless of how many rival groups the ethnic group in question faces.

$\text{Hypothesis}_{\text{alternative}}$ 6a: In cases involving a dispersed ethnic group living in parliamentary-PR systems, ceteris paribus, the expected level of *violent* conflict is

less intense in countries having more than two ethnic groups than in those with only two groups.

Hypothesis$_{null}$ 6b: In cases involving a dispersed ethnic group living in parliamentary-PR systems, ceteris paribus, the expected level of *nonviolent* conflict is similar regardless of how many rival groups the ethnic group in question faces.

Hypothesis$_{alternative}$ 6b: In cases involving a dispersed ethnic group living in parliamentary-PR systems, ceteris paribus, the expected level of *nonviolent* conflict is less intense in countries having more than two ethnic groups than in those with only two groups.

Or equivalently, I expect to find either the null hypotheses

$$H_{null}\ 6a: E(\text{Reb} \mid \text{Type} = 13; \bar{\mathbf{x}}_c) = E(\text{Reb} \mid \text{Type} = 9; \bar{\mathbf{x}}_c)$$
$$H_{null}\ 6b: E(\text{Prot} \mid \text{Type} = 13; \bar{\mathbf{x}}_c) = E(\text{Prot} \mid \text{Type} = 9; \bar{\mathbf{x}}_c)$$

or the alternative hypotheses to be true.

$$H_{alternative}\ 6a: E(\text{Reb} \mid \text{Type} = 13; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 9; \bar{\mathbf{x}}_c)$$
$$H_{alternative}\ 6b: E(\text{Prot} \mid \text{Type} = 13; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 9; \bar{\mathbf{x}}_c)$$

Since I follow the same logic to derive hypotheses for dispersed groups, I will not repeat the reasoning hereafter. For the comparisons of dispersed groups, one hypothesis is always identical to that for concentrated groups, controlling for government structures and electoral systems. The other hypothesis always recognizes the feature of dispersed groups that no factors enhance or decrease such groups' motivation and capability to compete for power.

3.6.1.3 Concentrated Groups under Presidential-PR Systems

One major undesirable feature of presidential-PR systems lies in the possibility that

these institutional configurations may produce a fragmented parliament which makes a president dominate more easily and makes the dominated fight more intensely. This unwelcome likelihood tends to exist in states with more than two ethnic groups, which help generate multipartism and a fragmented parliament in the presence of PR systems. When states have only two major ethnic groups, using a PR system generally does not lead to these problems. Put differently, for a concentrated group in presidential-PR systems, only when they face only one rival ethnic group will they have more say in policy-making, feel more secure, and find no need to engage in more intense violent or nonviolent conflict.

Hypothesis 7a: In cases involving a concentrated ethnic group living in presidential-PR systems, ceteris paribus, the expected level of *violent* conflict is less intense in countries having two major ethnic groups than in those with more than two groups.

Hypothesis 7b: In cases involving a concentrated ethnic group living in presidential-PR systems, ceteris paribus, the expected level of *nonviolent* conflict is less intense in countries having two major ethnic groups than in those with more than two groups.

Or equivalently, I expect to find the following research hypotheses to be true.

$$\text{H7a} : \text{E}(\text{Reb} \mid \text{Type} = 2; \bar{\mathbf{x}}_c) < \text{E}(\text{Reb} \mid \text{Type} = 6; \bar{\mathbf{x}}_c)$$
$$\text{H7b} : \text{E}(\text{Prot} \mid \text{Type} = 2; \bar{\mathbf{x}}_c) < \text{E}(\text{Prot} \mid \text{Type} = 6; \bar{\mathbf{x}}_c)$$

3.6.1.4 Dispersed Groups under Presidential-PR Systems

Hypothesis$_{\text{alternative}}$ 8a: In cases involving a dispersed ethnic group living in presidential-PR systems, ceteris paribus, the expected level of *violent* conflict is

less intense in countries having two major ethnic groups than in those with more than two groups.

Hypothesis$_{null}$ 8a: In cases involving a dispersed ethnic group living in presidential-PR systems, ceteris paribus, the expected level of *violent* conflict is similar regardless of how many rival groups the ethnic group in question faces.

Hypothesis$_{alternative}$ 8b: In cases involving a dispersed ethnic group living in presidential-PR systems, ceteris paribus, the expected level of *nonviolent* conflict is less intense in countries having two major ethnic groups than in those with more than two groups.

Hypothesis$_{null}$ 8b: In cases involving a dispersed ethnic group living in presidential-PR systems, ceteris paribus, the expected level of *nonviolent* conflict is similar regardless of how many rival groups the ethnic group in question faces.

Or equivalently, I expect to find either the null hypotheses

$$H_{null}\ 8a : E(\text{Reb} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) = E(\text{Reb} \mid \text{Type} = 14;\ \bar{\mathbf{x}}_c)$$
$$H_{null}\ 8b : E(\text{Prot} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) = E(\text{Prot} \mid \text{Type} = 14;\ \bar{\mathbf{x}}_c)$$

or the alternative hypotheses to be true.

$$H_{alternative}\ 8a : E(\text{Reb} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 14;\ \bar{\mathbf{x}}_c)$$
$$H_{alternative}\ 8b : E(\text{Prot} \mid \text{Type} = 10;\ \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 14;\ \bar{\mathbf{x}}_c)$$

3.6.1.5 Concentrated Groups under Parliamentary-SMD Systems

For states having more than two ethnic groups, parliamentary-SMD systems tend to favor groups joining coalition cabinets at the expense of those who do not. Because of the use of SMD systems and the presence of more than two groups, moderate multiparty systems are more likely to emerge than extreme multiparty systems. Fewer groups will be needed for the formation and survival of a majority coalition. This fact is conducive to a

more stable coalition cabinet. Consequently, those outside a coalition cabinet will find more serious difficulties in competing for power and, hence, feel more insecure and fight more intensely. Under the same parliamentary-SMD systems, a state having only two major groups should display a similar level of ethnic conflict. This combination of parliamentary-SMD systems and two ethnic groups favors a very stable single-party-majority (or single-group-majority) cabinet, which is hardly defeated by the other group. This discussion leads to Hypothesis 9a and Hypothesis 9b.

Hypothesis 9a: In cases involving a concentrated ethnic group living in parliamentary-SMD systems, ceteris paribus, the expected level of *violent* conflict is similar regardless of how many rival groups the ethnic group in question faces.

Hypothesis 9b: In cases involving a concentrated ethnic group living in parliamentary-SMD systems, ceteris paribus, the expected level of *nonviolent* conflict is similar regardless of how many rival groups the ethnic group in question faces.

Or equivalently, I expect to find the following hypotheses to be true.

$$\text{H9a} : \text{E}(\text{Reb} \mid \text{Type} = 3; \bar{\mathbf{x}}_c) = \text{E}(\text{Reb} \mid \text{Type} = 7; \bar{\mathbf{x}}_c)$$
$$\text{H9b} : \text{E}(\text{Prot} \mid \text{Type} = 3; \bar{\mathbf{x}}_c) = \text{E}(\text{Prot} \mid \text{Type} = 7; \bar{\mathbf{x}}_c)$$

3.6.1.6 Dispersed Groups under Parliamentary-SMD Systems

There are only null hypotheses for the comparison between Type 11 and Type 15 because the number of rival groups does not influence how strongly dispersed groups feel insecure, just like their concentrated counterparts living in the same political systems.

Hypothesis 10a: In cases involving a dispersed ethnic group living in parliamentary-SMD systems, ceteris paribus, the expected level of *violent* conflict

is similar regardless of how many rival groups the ethnic group in question faces.

Hypothesis 10b: In cases involving a dispersed ethnic group living in parliamentary-SMD systems, ceteris paribus, the expected level of *nonviolent* conflict is similar regardless of how many rival groups the ethnic group in question faces.

Or equivalently, I expect to find the following hypotheses to be true.

$$\text{H10a} : E(\text{Reb} \mid \text{Type} = 11; \bar{\mathbf{x}}_c) = E(\text{Reb} \mid \text{Type} = 15; \bar{\mathbf{x}}_c)$$
$$\text{H10b} : E(\text{Prot} \mid \text{Type} = 11; \bar{\mathbf{x}}_c) = E(\text{Prot} \mid \text{Type} = 15; \bar{\mathbf{x}}_c)$$

3.6.1.7 Concentrated Groups under Presidential-SMD Systems

For a state having more than two ethnic groups and using a presidential-SMD system, the group or the party of its president will almost always not control a legislative majority. As aforementioned, the combination of SMD systems and multiple groups tends to favor the formation of moderate multiparty systems. No groups or parties would win a majority of seats, so a president almost always faces a divided government, and checks and balances between groups almost always exist. Conversely, for a state having only two major ethnic groups in the same institutional arrangements, the group and the party of its president is likely to exclusively control both executive and legislative powers, making the dominated group powerless.

Hypothesis 11a: In cases involving a concentrated ethnic group living in presidential-SMD systems, ceteris paribus, the expected level of *violent* conflict is less intense in countries having more than two ethnic groups than in those with only two groups.

Hypothesis 11b: In cases involving a concentrated ethnic group living in

presidential-SMD systems, ceteris paribus, the expected level of *nonviolent* conflict is less intense in countries having more than two ethnic groups than in those with only two groups.

Or equivalently, I expect to find the following research hypotheses to be true.

$$\text{H11a} : \text{E}(\text{Reb} \mid \text{Type} = 8; \bar{\mathbf{x}}_c) < \text{E}(\text{Reb} \mid \text{Type} = 4; \bar{\mathbf{x}}_c)$$
$$\text{H11b} : \text{E}(\text{Prot} \mid \text{Type} = 8; \bar{\mathbf{x}}_c) < \text{E}(\text{Prot} \mid \text{Type} = 4; \bar{\mathbf{x}}_c)$$

3.6.1.8 Dispersed Groups under Presidential-SMD Systems

Because there are no observations of Type 16 in the data set of this dissertation, I cannot examine the difference between Type 12 and Type 16.

3.6.2 The Impact of Ethnic Spatial Distributions

Dispersed groups are well-known for their lower propensities to fight against their states and rival groups because of their lower legitimacy and capabilities to do so. I agree with this notion, but disagree to take that in its loose form. The notion holds up only after controlling for government structures and electoral systems. The other contextual factor, i.e. the number of ethnic groups, does not matter. No matter how many rival groups exist, dispersed groups are generally more peaceful than concentrated groups, holding the combinations of government structures and electoral systems constant. Even if the interaction between group numbers and political systems provides concentrated groups more influences in policy making, such groups are still more likely to engage in conflict than dispersed groups. This possibility tends to exist because an uneven distribution of powers between dominant and minority groups is more likely to persist. Given this condition, capable concentrated groups living in more empowering countries are still

more likely to fight for fairer treatments than less capable dispersed groups living in less empowering countries. In sum, controlling for the institutional configurations of government structures and electoral systems, concentrated groups are more likely to fight more intensely than dispersed groups, regardless of how many rival groups these two groups face respectively. This conclusion constitutes Hypothesis 12a and Hypothesis 12b.

Hypothesis 12a: Given specific government structures and electoral systems and regardless of the number of ethnic groups, ceteris paribus, concentrated groups' expected level of *violent* conflict is less intense than dispersed groups'.

Hypothesis 12b: Given specific government structures and electoral systems and regardless of the number of ethnic groups, ceteris paribus, concentrated groups' expected level of *nonviolent* conflict is less intense than dispersed groups'.

Or equivalently, I expect to find the following research hypotheses to be true.

3.6.2.1 Ethnic Groups under Parliamentary-PR Systems:

$$\text{H12a(1)} : E(\text{Reb} \mid \text{Type} = 9; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 1; \bar{\mathbf{x}}_c)$$
$$\text{H12a(2)} : E(\text{Reb} \mid \text{Type} = 13; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 1; \bar{\mathbf{x}}_c)$$
$$\text{H12a(3)} : E(\text{Reb} \mid \text{Type} = 9; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 5; \bar{\mathbf{x}}_c)$$
$$\text{H12a(4)} : E(\text{Reb} \mid \text{Type} = 13; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 5; \bar{\mathbf{x}}_c)$$
$$\text{H12b(1)} : E(\text{Prot} \mid \text{Type} = 9; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 1; \bar{\mathbf{x}}_c)$$
$$\text{H12b(2)} : E(\text{Prot} \mid \text{Type} = 13; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 1; \bar{\mathbf{x}}_c)$$
$$\text{H12b(3)} : E(\text{Prot} \mid \text{Type} = 9; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 5; \bar{\mathbf{x}}_c)$$
$$\text{H12b(4)} : E(\text{Prot} \mid \text{Type} = 13; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 5; \bar{\mathbf{x}}_c)$$

where Types 9 and 13 on the one hand and Types 1 and 5 on the other hand include cases involving dispersed and concentrated groups, respectively. Groups of Types 1 and 9 on the one hand and of Types 5 and 13 on the other hand face one and multiple rival groups, respectively.

3.6.2.2 Ethnic Groups under Presidential-PR Systems:

$$\text{H12a(5)} \quad : E(\text{Reb} \mid \text{Type} = 10; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 2; \bar{\mathbf{x}}_c)$$
$$\text{H12a(6)} \quad : E(\text{Reb} \mid \text{Type} = 14; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 2; \bar{\mathbf{x}}_c)$$
$$\text{H12a(7)} \quad : E(\text{Reb} \mid \text{Type} = 10; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 6; \bar{\mathbf{x}}_c)$$
$$\text{H12a(8)} \quad : E(\text{Reb} \mid \text{Type} = 14; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 6; \bar{\mathbf{x}}_c)$$
$$\text{H12b(5)} \quad : E(\text{Prot} \mid \text{Type} = 10; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 2; \bar{\mathbf{x}}_c)$$
$$\text{H12b(6)} \quad : E(\text{Prot} \mid \text{Type} = 14; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 2; \bar{\mathbf{x}}_c)$$
$$\text{H12b(7)} \quad : E(\text{Prot} \mid \text{Type} = 10; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 6; \bar{\mathbf{x}}_c)$$
$$\text{H12b(8)} \quad : E(\text{Prot} \mid \text{Type} = 14; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 6; \bar{\mathbf{x}}_c)$$

where Types 10 and 14 on the one hand and Types 2 and 6 on the other hand include cases involving dispersed and concentrated groups, respectively. Groups of Types 2 and 10 on the one hand and of Types 6 and 14 on the other hand face one and multiple rival groups, respectively.

3.6.2.3 Ethnic Groups under Parliamentary-SMD Systems:

$$\text{H12a(9)} \quad : E(\text{Reb} \mid \text{Type} = 11; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 3; \bar{\mathbf{x}}_c)$$
$$\text{H12a(10)} \quad : E(\text{Reb} \mid \text{Type} = 15; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 3; \bar{\mathbf{x}}_c)$$
$$\text{H12a(11)} \quad : E(\text{Reb} \mid \text{Type} = 11; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 7; \bar{\mathbf{x}}_c)$$
$$\text{H12a(12)} \quad : E(\text{Reb} \mid \text{Type} = 15; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 7; \bar{\mathbf{x}}_c)$$
$$\text{H12b(9)} \quad : E(\text{Prot} \mid \text{Type} = 11; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 3; \bar{\mathbf{x}}_c)$$
$$\text{H12b(10)} \quad : E(\text{Prot} \mid \text{Type} = 15; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 3; \bar{\mathbf{x}}_c)$$
$$\text{H12b(11)} \quad : E(\text{Prot} \mid \text{Type} = 11; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 7; \bar{\mathbf{x}}_c)$$
$$\text{H12b(12)} \quad : E(\text{Prot} \mid \text{Type} = 15; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 7; \bar{\mathbf{x}}_c)$$

where Types 11 and 15 on the one hand and Types 3 and 7 on the other hand include cases involving dispersed and concentrated groups, respectively. Groups of Types 3 and 11 on the one hand and of Types 7 and 15 on the other hand face one and multiple rival groups, respectively.

3.6.2.4 Ethnic Groups under Presidential-SMD Systems:

$$\text{H12a(13)} \quad : E(\text{Reb} \mid \text{Type} = 12; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 4; \bar{\mathbf{x}}_c)$$
$$\text{H12a(14)} \quad : E(\text{Reb} \mid \text{Type} = 12; \bar{\mathbf{x}}_c) < E(\text{Reb} \mid \text{Type} = 8; \bar{\mathbf{x}}_c)$$
$$\text{H12b(13)} \quad : E(\text{Prot} \mid \text{Type} = 12; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 4; \bar{\mathbf{x}}_c)$$
$$\text{H12b(14)} \quad : E(\text{Prot} \mid \text{Type} = 12; \bar{\mathbf{x}}_c) < E(\text{Prot} \mid \text{Type} = 8; \bar{\mathbf{x}}_c)$$

where the Type 12 on the one hand and Types 4 and 8 on the other hand include cases involving dispersed and concentrated groups, respectively. Groups of Types 4 and 12 on the one hand and of the Type 8 on the other hand face one and multiple rival groups, respectively.

Before testing these hypotheses, I should explain my research design, such as models, methods, and data measurements. Research design constitutes the topic of the next chapter.

Chapter 4: Research Design and Measurement

I take the Minorities at Risk (MAR) dataset from 1985 to 2003 as my starting point and reorganize it for Time-Series Cross-Sectional (TSCS) analysis. In this dataset, minorities at risk are groups that collectively suffer, or benefit, from systematic discriminatory treatment vis-à-vis other groups in a state, and/or are the focus of political mobilization and action in defense or promotion of their self-defined interests (Gurr 1993). The dataset includes minority groups in every country that meet the additional criteria about population size.[65] The units of analysis in this dissertation are ethnic groups within a *democratic state* for a given year. By democratic states, I mean every country which receives a Polity IV score of at least 6.

As aforementioned, the TSCS data used in this paper introduce several well-known challenges including those arising with cross-sectional analysis and those accompanying time-series studies. The nested structure of my TSCS data also violates the assumption that observations are independent within groups and states. Ignoring this fact of unit heterogeneity will sometimes lead to the inflation of the Type I error rate (Raudenbush and Bryk 2002) and make the rejection of a null hypothesis easier. Furthermore, while the problem of ethnic tensions is widespread across countries, among the minority groups at risk, many of them did not engage in any violent ethnic conflict during most of the time period between 1985 and 2003. Zero violent conflicts occur in 1586 (76.47%) of the 2074 observations in the MAR dataset. Such a probability mass at a single value suggests biased and inconsistent ordinary least squares estimates (Grier et al. 1994). In sum, how to deal with all these problems constitutes a daunting task for any studies which analyze

[65] To be included in the dataset, minorities at risk must reside in countries with a population in 1985 greater than 1,000,000 and in 1990 numbered at least 100,000 or, if fewer, exceeded 1 percent of the population of at least one country in which they resided.

Table 4.1: Frequency of Ethnic Conflict in Democracies, 1985-2003

Nonviolent Protest	**N**	**%**	**Violent Rebellion**	**N**	**%**
None reported	569	27.38	None reported	1,586	76.47
Verbal opposition	281	13.52	Political banditry	169	8.15
Symbolic resistance	583	28.06	Campaigns of terrorism	93	4.48
Symbolic demonstrations	469	22.57	Local rebellion	37	1.78
Medium demonstrations	121	5.82	Small-scale guerrilla activity	86	4.15
Large demonstrations	55	2.65	Intermediate guerrilla activity	56	2.70
			Large-scale guerrilla activity	32	1.54
			Protracted civil war	15	0.72
Total	2,078	100	Total	2,074	100

ethnic conflict using the MAR dataset.

In this chapter, I will first briefly discuss appropriate statistical models for the data structure of this dissertation, followed by a section explaining how I measure the effective numbers and spatial distributions of ethnic groups as well as how I encode government structures and electoral systems. I will then introduce control variables and specify my empirical models. Before starting to discuss statistical models, I should describe my dependent variable to facilitate the following discussions.

The MAR dataset provides my dependent variables, violent rebellion and nonviolent protest against states. The measurement of these two variables should be appropriate because the MAR dataset encodes only those conflicts that involve ethnic group-based activity. Rebellion and protest are measured by 8- and 6-point scales, respectively, with 0 indicating no conflict and higher values representing more intense form of conflict. There is a single score for each ethnic group in each year.[66] Table 4.1 displays the distribution of my dependent variables in democracies during the period from 1985-2003. Obviously, nonviolent protest happens more frequently and does not suffer from the same problem of having a probability mass at the value of 0 as violent rebellion.

4.1 Statistical Models

This section discusses appropriate statistical models for the data structures of my dependent variables. As mentioned earlier, though not systematically, standard static models of analyzing TSCS data include (Kittel et al. 2005; Wilson et al. 2007): 1) performing a fixed effects model to remove all the unobserved country- and time-specific effects, 2) performing a between effects model to get rid of the panel structure, and 3) performing a random effects model which is a weighted average of the within and between estimators and using the Hausman test to choose between fixed and random effects models. Standard dynamic analyses of TSCS data usually involve the following procedures: 1) conducting panel unit root tests to ensure that the data is stationary to avoid spurious estimates; 2) applying a model with a lagged dependent variable and panel corrected standard errors in case of stationarity, and then testing for robustness with

[66] The values coded are based on the highest observed level of protest and rebellion in the given period and are not cumulative.

Table 4.2: Panel Unit Roots Tests

Anti-Regime Rebellion: Levels			
Fisher	χ^2	d.f.	P
constant (augmented Dickey-Fuller test)	179.83	296	1.00
constant (Phillips-Perron test)	264.71	322	0.99
constant, trend (augmented Dickey-Fuller test)	167.17	296	1.00
constant, trend (Phillips-Perron test)	246.94	322	1.00
Anti-Regime Rebellion: Changes			
Fisher	χ^2	d.f.	p
constant (augmented Dickey-Fuller test)	671.95	292	0.00
constant (Phillips-Perron test)	1253.73	322	0.00
constant, trend (augmented Dickey-Fuller test)	580.55	292	0.00
constant, trend (Phillips-Perron test)	1002.54	322	0.00

Note: Fisher ($P\lambda$) test does not require a balanced panel, so all the cases are included. This table presents the results of Fisher tests (Maddala and Wu 1999) augmented by 1 lag under the null hypothesis that all series are non-stationary against the alternative that at least one series in the panel is stationary. The conclusions do not change when the tests are augmented by 0, 2, or 3 lags.

respect to different dynamic specifications. Otherwise, deal with nonstationary data by taking first differences and investigate short-term relations between the variables of interest instead.

Estimating a fixed effects model in this dissertation is inherently difficult since the variables of interest, i.e. the institutional and contextual factors, are almost fixed over time and hence cannot be included in such a model. Because of this reason, I cannot conduct the Hausman test to determine the appropriateness of a random effects model. This discussion concludes that a between effects model is the most conservative and one appropriate approach for this research (Kittel et al. 2005; Wilson et al. 2007). The fact that the severity of violent ethnic conflict does not change

Table 4.3 Panel Unit Roots Tests

Anti-Regime Protest: Levels			
Fisher	χ^2	d.f.	P
constant (augmented Dickey-Fuller test)	469.31	294	0.00
constant (Phillips-Perron test)	747.08	322	0.00
constant, trend (augmented Dickey-Fuller test)	506.28	294	0.00
constant, trend (Phillips-Perron test)	702.23	322	0.00

Note: Fisher ($P\lambda$) test does not require a balanced panel, so all the cases are included. This table presents the results of Fisher tests (Maddala and Wu 1999) augmented by 1 lag under the null hypothesis that all series are non-stationary against the alternative that at least one series in the panel is stationary. The conclusions do not change when the tests are augmented by 0, 2, or 3 lags.

significantly over time for most groups further justifies the choice of a between effects model for this variable.

It is still possible to account for all unobserved country- and time-specific effects in a dynamic model, however. Panel unit root tests need to be done before proceeding to use a dynamic model with a lagged dependent variable, panel corrected standard errors, and all the country- and time- specific effects. Table 4.2 presents the results of Fisher ($P\lambda$) tests for panel unit roots for violent ethnic conflict.[67] The upper panel refers to the levels. These tests cannot reject the null hypothesis of nonstationarity, so the rebellion data is not stationary. The lower panel refers to changes, i.e. the first difference of the dependence variable. Stationarity condition holds after taking the first difference. Table 4.3 displays the results of Fisher ($P\lambda$) tests for panel unit roots for nonviolent ethnic conflict. There is only a panel referring to the levels because these tests reject the null hypothesis of nonstationarity. The protest variable is stationary.

Based on these test results, I can apply the widely used Beck and Katz approach to

[67] For the discussion of this test and its comparison with other methods of unit root tests, please refer to Maddala and Wu (1999).

analyze nonviolent protest (Beck and Katz 1996). A post-estimation of any remaining autocorrelation is required to ensure that the problem has been totally tackled by the inclusion of a lagged dependent variable, however. If not, then a between effects model probably still outperform the Beck and Katz approach in the sense that the latter does not offer consistent estimates of parameters in the presence of serial correlation (Maddala 1999).

For violent rebellion, the finding of nonstationarity leaves this paper an undesirable consequence that may meet the needs of other studies: dealing with nonstationarity by taking the first difference and losing the chance of investigating the long-term relations between the variables of interest. I will not follow suit. The primary variables of interest in this dissertation are institutions and contexts which rarely change over time. Taking the first difference of almost time-invariant variables does not make sense since doing so essentially transforms those variables into vectors with mostly values of 0 and makes their effects hard to be estimated. I have therefore decided to emphasize the cross-sectional dimension of the rebellion variable and stick to a between effects model. Since the panel structure of my original dataset disappears, the data structure turns into one with only two levels. Ethnic groups and states in which ethnic groups nested constitute the first and the second levels, respectively. I will perform a hierarchical linear model on this new data structure to avoid the inflation of the Type I error rate.

Getting rid of its panel structure when data has persistent memory does not serve as the only or the best solution when the dependent and independent variables of interest change very slowly over time. As shown in Table 4.1, given the prevalence of no violent conflict, one potential source of data persistence, it is not surprising that there remain many zeros (60.47%) in the dependent variable, after removing its time-series structure.

Running a between effects model under this situation does not help generate consistent and unbiased coefficient estimates. Fortunately, the unique data structure of violent ethnic conflict not only causes the problem of data persistence, but also provides another way out. In Chapter 7, I will introduce a zero-inflated ordered probit model (ZIOP), which better analyzes ordinal scale data having a probability mass at the single value of 0 (Harris and Zhao 2004).[68] This model has never been used in any political science research, and helps unravel the different probabilities of each level of ethnic conflict in different political systems and contexts.

In sum, the Beck and Katz approach will be applied to analyze the stationary nonviolent ethnic conflict. However, if the problem of serial correlation remains, a between-effects model will replace the Beck and Katz approach. I will also perform a hierarchical model as a sensitivity test to avoid the Type I error. For nonstationary violent ethnic conflict, I will perform a ZIOP model to deal with the problem of excessive zero observations, in addition to a between effects model and a hierarchical model.

Complete model specifications will be displayed after discussing the data measurement of this dissertation, a topic to which I now turn.

4.2 Data Measurement

The dependent variables have been described in the beginning of this chapter. In this section, I first discuss how I encode and measure the key variables of this research, including government structures, electoral systems, as well as the effective numbers and

[68] Both rebellion and protest are better considered ordinal scale variables because theoretically, we do not have a reason to expect that the magnitude of the difference between two consecutive values of these ethnic conflict variables has exact numerical meaning in the sense that one such difference can be compared with another. I assume that these variables have an interval scale, and perform between-effects and hierarchical models in Chapters 5-6 because past studies made the same assumption and because I want to test whether different assumptions make a difference. Only the rebellion data will be re-analyzed in Chapter 7, however.

spatial distributions of ethnic groups. Appendix 2 displays the data of these variables for each group and country studied in this dissertation. I then discuss other variables for which I control to estimate the impact of these variables of interest.

4.2.1 Government Structures[69]

For government structures, I construct a variable of *Parliamentary* with 1 and 0 indicating parliamentary and presidential (including both presidential and semi-presidential) systems, respectively. Before doing so, I need to classify states as presidential, parliamentary, or semi-presidential systems, however. This section first discusses the defining features of presidential systems and then those of parliamentary as well as semi-presidential regimes.

Most scholars emphasize similar points in distinguishing presidential from parliamentary systems. Presidential systems are usually defined as ones of mutual independence (Stepan and Skach 1993):

> 1. The executive is headed by a popularly elected president (either directly or indirectly by a *non-parliamentary* body) who serves as the "chief executive";
> 2. Both the chief executive and the legislative assembly have a fixed electoral mandate from which they derive their legitimacy.

What scholars mean when they refer to the "president" or to the "chief executive" differs, however. Lijphart (1992 and 1999) and Sartori (1997) refer to the term as the head of government and the head of state, respectively. Sartori's definition is arguably

[69] I construct this variable based on my reading of various sources, including Cheibub (2004), CIA Factbook, Elgie (1999, 2007), Europa World, Hellwig and Samuels (2007), Moestrup (2006), Shugart (2005), Siaroff (2003), Wu (2006), and the online Constitution Finder: http://confinder.richmond.edu.

more general than Lijphart, in the sense that, for Sartori, as long as the executive authority flows from a president down, the presence of a separate head of government will not disqualify a state for a presidential system. Put differently, for Sartori, both the scenarios meet the criteria of presidentialism that a popularly elected president is at the same time the head of state as well as the head of government, and that a popularly elected president is only the head of state with a separate head of government responsible to him.[70] Aligned with Sartori, Shugart (2005: 2) includes as another feature of presidentialism that "the president names and directs the cabinet and has some constitutionally granted lawmaking authority." This additional feature makes possible the presence of a separate head of government and makes clear that the cabinet and the prime minister derive their authority from the president. In sum, Sartori's and Shugart's definitions of presidentialism are not only reasonable, but also more general and, hence, more useful when classifying systems in that constitutions across the world are quite complicated. Following narrower definitions would leave quite a few systems in gray areas out of analyses, lose valuable observations, and make some comparative studies hard, if not unlikely at all, to do.

Parliamentary systems, on the other hand, used to be defined by mutual dependence both in terms of the origin and survival of the executive and legislative branches (Stepan and Skach 1993):

1. The chief executive power arises out of the legislative assembly and can fall if it receives a vote of no confidence;
2. The chief executive has the power to dissolve the legislature and call for elections.

[70] Other scholars have similarly narrow definitions of presidentialism as Lijphart. For example, Varney (1992) and Elgie (1998) consider a state a presidential system only when the president becomes both the head of state and the head of government.

More and more scholars realize that while dissolution is logically impossible in the basic characteristics of presidentialism, it does not constitute a logical requirement for the defining features of parliamentarism to hold (Shugart 2005, Wu 2006). In other words, for many scholars, the condition that the chief executive power arises out of the legislative assembly and can fall if it receives a vote of no confidence defines the sole characteristic of parliamentarism (Sartori 1997). Based on this single feature, all the democratic monarchies are found to have a parliamentary system (Wu 2006). There is no discussion about whether there possibly exists a president in parliamentary systems in the definition. Arguably, all scholars would agree that the president must be indirectly elected by a *parliamentary* body for the system in question to be parliamentary (Elgie 1998, Siaroff 2003, Wu 2006). Otherwise, the presences of a president who is elected directly or indirectly by a *non-parliamentary* body, together with that of a prime minister who is accountable to the legislature, would violate what defines parliamentarism: the single chain of legitimacy, command, and responsibility that flows from the parliament to the government (Wu 2006). As long as its president is indirectly elected by a parliamentary body, the system is parliamentary, be the president strong or weak in terms of the power he possesses (Wu 2006).[71] In sum, two scenarios ensure parliamentarism of a system. One is the presence of democratic monarchies. The other is the combination of a president, elected indirectly by a parliamentary body, and a separate head of government.

[71] Empirically, most presidents in parliamentary systems enjoy very little formal power. Guyana may be one of the most exceptional cases in that its president possesses quite considerable powers. For some scholars, whether a president is strong or weak influences whether a system can be labeled as a parliamentary system. For example, in Durverger's first definition of semi-presidentialism in 1970, he indicated that a semi-president has certain powers which exceed those of a head of state in a normal parliamentary regime. This implies the importance of a ceremonial head of state for the definitional features of parliamentarism to hold. Probably because of the same reason, some scholars categorize Guyana as a presidential system or one close to that (Siaroff 2003; Moestrup 2006). Given that the Guyana's successful presidential candidate is the nominee of the party with the largest number of votes in the legislative elections and can fall with the cabinet if the cabinet receives a vote of no confidence (see clause 106 (2) of the consitution), it is more reasonable to consider Guyana a parliamentary system.

General consensus exists among scholars about which countries belong to presidential and parliamentary categories. Some ambiguous cases remain, however, such as Belarus during 1991-1994, Indonesia during 1999-2003, Switzerland, Taiwan during 1992-1996, and Yugoslavia during 2001-2002. I code Belarus and Yugoslavia during their respective periods as parliamentary systems and Indonesia, Switzerland, and Taiwan during the particular years as presidential systems because of the following reasons.

Although Indonesia's and Taiwan's presidents used to be elected by a legislative body, there was no binding vote of no confidence in their then constitutions, the defining feature of parliamentarism. Furthermore, even before Indonesia's new constitution was adopted in 2001 and 2002, the ministers acted simply as the president's assistants and were appointed and dismissed by him. These countries during their respective time periods are thus coded as presidential systems. However, since some scholars consider Taiwan a parliamentary system, I will do a sensitivity test to examine whether coding Taiwan's government structure differently change the estimates.

Switzerland provides another unique mixed system. While its chief executive originates from assembly majority, its survival does not depend on the legislature's confidence. Executive-legislative relations in Switzerland are, however, closer to those in presidential than in parliamentary systems (Lijphart 1984), a fact that explains why some scholars consider Switzerland presidential. I will first code it as a presidential system and test whether excluding it from analysis leads to different findings.

Belarus during 1991-1994 satisfied the defining characteristic of parliamentarism. Specifically, the Supreme Soviet, Belarus' then legislature, could elect and use a vote of no confidence to dismiss the head of state (Stanislav Shushkevich) and the head of

government (Vyachaslaw Kyebich).[72] I thus coded it as a parliamentary system although it did not adopt its constitution until 1994 and only 10% of the deputies of the Supreme Soviet were members of the opposition.

While the Federal Republic of Yugoslavia during 2001 and 2002 had a popularly and directly elected president, Vojislav Koštunica, he held only little formal power and would soon become irrelevant, given the then ongoing process of reorganizing the federal state. Empirically, a typical chief executive in presidential systems possesses strong formal power (Siaroff 2003). I thus classify Yugoslavia during 2001 and 2002 as parliamentary, but at the same time test whether I will reach different conclusions if the state is coded as a presidential system.

In contrast to presidentialism and parliamentarism, the definitions of semi-presidentialism arouse a lot more confusion and fierce debate. Duverger (1980), who coined the term, defines semi-presidentialism as a system in which:

1. A president is elected by universal suffrage;
2. The president has considerable constitutional authority;
3. There exists also a prime minister and cabinet, subject to the confidence of the assembly majority.

The first and especially the second definitional features of semi-presidentialism have been widely discussed and criticized. As far as the first definition is concerned, universal suffrage implies a direct election for some scholars. The fact that Duverger deemed Finland a semi-presidential system before its president was directly elected suggests that both direct elections and indirect ones by a *non-parliamentary* body satisfy the first

[72] Shushkevich was ousted by a vote of no confidence which Kyebich survived in 1994.

element of Duverger's definition of semi-presidentialism. Sartori (1997) also agrees with this interpretation.

That a semi-president must possess quite considerable powers generates more serious perplexity. Duverger never expands on what he means by "quite considerable powers." Some scholars thus object to regard semi-presidentialism as a valid category of government structures since it embraces countries with both very strong and very weak presidents. Others seek to provide "quite considerable powers" a more precise meaning. For example, Shugart (2005: 12) argues that if a president does not have the initiative for selecting a prime minister, then the only reason that the president is still considered possessing quite considerable power is that s/he has at least one of the following powers: "dissolution (as in Niger), a veto (as in Bulgaria and Ukraine 2005, as well as Niger), or the right to appoint a prime minister if the assembly majority deadlocks (Madagascar)." Wu (2006) emphasizes different powers from Shugart. For Wu, quite considerable powers should include at least one of the following: the presidential powers to appoint the prime minister without the consent of the parliament, to actively dissolve the parliament, and to issue ordinances stipulated by the constitution.

Neither of these responses provides a perfect solution (Elgie 1999). The former response ignores the fact that even presidential and parliamentary systems have diverse political practices, though to a much less extent. The latter response causes a "subjectivity problem" since different scholars may end up providing different lists of semi-presidential systems. These facts explain why Elgie and several other scholars propose ignoring whether the president has quite considerable powers as a defining feature of semi-presidentialism. For the cases of my sample, the second approach does not lead to a serious problem of subjectivity, however.

Table 4.4: Lists of semi-presidential systems

	Elgie	Moestrup	Siaroff	Shugart	Wu
Bulgaria 1991-[73]	◎	◎	◎	◎	◎
Croatia 1990-	◎	◎	◎		◎
France 1958-	◎		◎	◎	◎
Lithuania 1992-[74]	◎	◎	◎	◎	◎
Macedonia 1991-[75]	◎	◎	◎	◎	◎
Madagascar 1992-	◎	◎	◎	◎	◎
Mali 1992-	◎	◎	◎	◎	◎
Moldova 1994-2000[76]	◎	◎	◎		◎
Namibia	◎	◎		◎	◎
Niger	◎	◎		◎	
Peru 1979-	◎	◎	◎	◎	
Romania 1996-	◎	◎	◎	◎	◎
Russia 1993-	◎	◎	◎	◎	◎
Senegal	◎	◎		◎	
Slovakia 1999-	◎	◎	◎		◎
South Korea	◎	◎			
Sri Lanka	◎	◎		◎	◎
Taiwan 1994-	◎		◎	◎	◎
Ukraine 1992-	◎	◎	◎	◎	◎

Note: The time periods for each state in the first column come from Siaroff (2003). While the information is not as clear in most of the other lists, all the 5 lists should refer to quite similar years during which each state belongs to the semi-presidential category.

Table 4.4 presents 5 lists of semi-presidential systems covered in this dissertation.

[73] It is unclear why Cheibub et al. (2004) regard Bulgaria as a parliamentary system given that its president is independently elected.

[74] Lithuania adopted its constitution in 1992, but I code Lithuania since 1991 as a semi-presidential system in the assumption that the process of creating the system has similar effects on ethnic relations. I do the same to the cases of Moldova and Russia and to the classifications of electoral systems. I also classify Bulgaria since 1990 and Ukraine since 1991 as semi-presidential systems, 1 year earlier than the dates shown in Table 4.4 for these two countries. This difference between Siaroff's and my lists may come from the divergent rules that we use to determine whether a case belongs to a democratic regime.

[75] It is again unclear why Cheibub et al. (2004) consider Macedonia a parliamentary system.

[76] Among the cases on Elgie's list, only Moldova comes from Elgie (1999). All the others are from Elgie (2007).

The 8 cases in gray areas represent those on which the five scholars have different judgments about whether they are semi-presidential systems. Almost every list includes the remaining 11 cases in white areas as semi-presidential systems. While some lists exclude France since 1958, Taiwan since 1994,[77] and Moldova between 1994 and 2000, the reason is simply because they are not in the samples from which these scholars constructed their lists. This explains why these three cases are not included in some lists yet not in gray areas. Among the lists, only Siaroff (2003) leaves Namibia and Sri Lanka out possibly because of his misinterpretation of their constitutions or neglect of some provisions.[78] Only Elgie (2007) and Moestrup (2006) consider South Korea a semi-presidential system, but there is no provision in its constitution for a binding vote of no confidence that semipresidentialism requires. Wu may also overlook some provisions of the constitutions of Senegal and Niger since the presidents in these two countries have quite considerable powers as he defines.[79] Siaroff's list does not have Senegal and Niger, either, only because these two countries are not in the samples from which Siaroff classified government structures. Only the remaining 3 cases (Croatia, Peru, and Slovakia) in gray areas probably result from the different definitions that Shugart and Wu use to define "quite considerable powers."[80] In sum, only 3 out of the total 19 countries may

[77] Only after 1997 was Taiwan generally regarded as a semi-presidential system because its Legislative Yuan could not dissolve cabinets by a vote of no confidence before that year.
[78] According to Siaroff (2003), Namibia has a single popularly elected head of state and government, which is not accountable to the legislature. Sri Lanka has a popularly elected head of state and a separate head of government, with the latter not accountable to the legislature. Based on the constitutions of these two countries, however, both Namibia and Sri Lanka have a prime minister accountable to the legislatue.
[79] According to Shugart (2005) Niger's president can exercise active dissolution power 1 time per 2 years. Senegal's cabinets can be formed without investiture.
[80] Take Croatia for an example. Although the presidential power to appoint the government has been transferred to the legislature since 2000, the president still has the power to issue decrees having the force of law and, hence, meet Wu's criterion for him to be a powerful semi-president. As for Peru, only when delegated by the parliament does its president, who has veto power, become competent to enact laws. This explains why Peru shows on Shugart's, but not on Wu's list. Please refer to Europa World , as well as Shugart and Mainwaring (1997) for details.

display the subjectivity problem. In this dissertation, I accept both the definitions of Shugart and Wu and classify all of the 19 states as semi-presidential systems.

In addition to these 19 cases, I also code Israel during 1992-2000 as a semi-presidential system. The Basic Law revised in 1992 made Israel the first country to directly and popularly elect its prime minister, concurrent with the legislative elections. With this change, Israel during 1992-2000 no long belonged to the parliamentary category. It was not a presidential system, either, given that its prime minister, i.e. the chief executive, and its parliament had mutual dependence in terms of their survival. While Israel during the period was also not a "typical" semi-presidential system, given that it did not have a popularly elected president and, hence, lacked the defining feature of dual executive of semi-presidentialism, some scholars argue that Israel with a directly elected prime minister was closest to a president-parliamentary regime (Hazan 1997), a sub-type of semi-presidentialism (Shugart and Carey 1992). In the following empirical chapter, I compare the differences between including Israel in analyses as a semi-presidential system and excluding it from studies in terms of the results of hypothesis testing.

4.2.2 Electoral Systems[81]

There is more consensus among scholars about how to classify electoral systems, which I divide into two categories: PR and SMD. The SMD category includes all the systems not using a proportional formulae to distribute seats, such as plurality and majority systems in single-member districts. The PR category includes plurality systems in multi-member districts, binominal systems, and PR in multi-member districts.

[81] I encode electoral systems using Kostadinova (2002), Massicotte and Blais (1999), Shugart and Wattenberg (2001), Shvetsova (1999), the data handbooks of elections in Asia, Europe, Americas, and Africa, as well as the IFES election guide at http://www.electionguide.org/.

The only major coding problem comes from the complicated mixed electoral systems. These systems will be categorized as PR or SMD systems, based on whether they "lean" toward majoritarian (i.e., the so-called mixed-member majoritarian or MMM systems) or proportional (i.e., the so-called mixed-member proportional or MMP systems) in their overall effects (Shugart and Wattenberg 2001).[82]

It should be noted that the three cases in my sample, Australia, Fiji in 1999, and Papua New Guinea, use the system of Alternative Vote, which I classify as a SMD system in this dissertation. Since some scholars consider the system exceptionally helpful for the moderation of ethnic politics, these three cases may boost the beneficial effect of SMD systems. I will examine whether excluding these cases from analysis change the impact of electoral systems.

4.2.3 Ethnic Diversity

For the purpose of this research, I divide the effective numbers of ethnic groups into two categories: two groups and more than two groups. Determining the effective number of ethnic groups in a state requires answering first the question as to what defines ethnicity.

As mentioned earlier, in comparative politics, few scholars would accept a completely primordialist definition of ethnicity.[83] Instead, most scholars agree that, in

[82] What separates MMM from MMP systems is the presence or absence of a linkage between tiers. If the tiers are not linked, then the typical majority boost received by a large party in the nominal tier is not likely to be corrected by proportional allocation from the list tier. Thus, the principle behind majoritarian systems—giving an advantage to a large party—remains in MMM systems. On the other hand, MMP systems prioritize the list-PR tier and PR seats are distributed so as to correct the distortions created by the plurality or majority rule. For those parallel systems which incorporate a mechanism of vote linkage, such as in Hungary and Italy, the authors consider them as remaining in the category of MMM, because even if a party is over-represented in the nominal tier, it is still likely to receive many seats in the list-tier.

[83] Horowitz (1985) is arguably an exception, but many scholars think that his conception of ethnicity works reasonably well for the scope of his study, i.e. the severely divided societies of Asia, Africa, and the

addition to ascriptive features which define what people think they are, individuals have freedom and instrumental reasoning to identify. This implies that individuals can shift their identity over time as they see fit. Furthermore, not all ethnic groups are socially or politically relevant as independent social or political actors in that they may form broader coalitions with other groups or they may simply not participate in politics. Accordingly, for many scholars, to come up with a "right list" of ethnic groups requires updated knowledge about what people in a polity identify as the most socially or politically relevant ethnic groups for different kinds of issues and different loci of competition (Posner 2000, 2004; Laitin and Posner 2001; Fearon 2003).[84]

Obtaining this knowledge would, in turn, require a randomly drawn sample of people and ask them a series of survey questions periodically, such as how they (and others) define themselves (Posner 2000; Fearon 2003). [85] Lots of money and resources will be necessary if we want to conduct such surveys to come up a single, right list of

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Caribbean.

[84] In contrast, constructivists would argue that since ethnic identities are context-bound, it is unlikely to code ethnic groups in any time period. The mainstream view remains that while ethnicity may be situational, there are rules in each society about how to best divide a country into categories of identities. For many scholars, it is thus not a problem to enumerate ethnic groups and create indices of ethnic fractionalization.

[85] In addition to the fact that "politically" relevant ethnic groups are more useful for "political" science research, Posner's lists of politically relevant ethnic groups (abbreviated as PREG) generally better suit the needs of the discipline than those of socially relevant ethnic groups, which can be collected using the survey questions Fearon suggests. These two lists differ in that Posner (2000) controls for "context," and makes sure that the identity offered in response to the "who are you" question is the same identity that was important to the respondent at the time of the political behavior that researchers are using the respondent's answer to explain. Specifically, Posner designs and plays a "prompt dialogue," which uses "real local language" learned from the open-ended interviews in his field research, and then asks respondents to respond directly to the content of the dialogue. Posner's method of defining groups takes lots of time and effort and, hence, is quite hard to apply. It is not surprising that even Posner himself uses this method to construct only Zambia's index of ethnic fractionalization to date. Posner (2004) uses another approach to collect the list of politically relevant ethnic groups. He conducts a thorough literature search for book, academic articles, and news reports that described the appropriate ethnic breakdowns for the ethnic politics of each of the countries. While arguably easier to apply, this method of defining groups remains quite time-consuming and so far no equivalent data exists outside Africa. Cross-continent analysis is therefore unlikely using this PREG index. Furthermore, some also question that Posner (2004) captures only actual conflict while what is important is to capture potential conflict as well (Garcia-Montalvo and Reynal-Querol 2002).

groups for every country. This kind of research having a broad geographic coverage is to date non-existent and hence the dataset of a “right list” of groups for each country is presently unavailable. Without better alternatives, most scholars are forced to rely on views quite close to primordialism to define ethnic groups and secondary sources to assemble a fixed list and the population shares of ethnic groups (Herrera and Kapur 2005).

The most frequently cited definition of ethnic groups comes from Anthony Smith (1986: chap. 2). For Smith, an ethnic community is

> “a named human population with myths of common ancestry, shared historical memories, one or more elements of common culture, a link with a homeland and a sense of solidarity.”

Other definitions often include a common language or common religion. This type of definition is used in the construction of two out of the three indices of ethnic fractionalization that I rely on to derive the effective number of ethnic groups in each state. The only exception is Fearon’s index. Fearon and Laitin (2000) see problems in these standard definitions which suggest the exclusion of groups that are ethnic intuitively, such as Jews who speak many different languages, may or may not practice the Jewish religion, and do not at all have a common culture, and the inclusion of groups, such as professors with a shared culture, which instinct would like to leave out.

Before explaining how I use the three indices to construct the data of the effective number of ethnic groups, I should briefly discuss how the authors of the indices define ethnicity based on which they assemble their lists of ethnic groups.

4.2.3.1 Fearon's Index of Ethnic Fractionalization

Fearon and Laitin (2000) follow the implicit rules that people use in daily conversation to define an "ethnic group."[86] The term refers to a group larger than a family for which membership is reckoned primarily by descent and conceptually autonomous (in order to rule out cases such as castes or nobility),[87] and has a conventionally recognized "natural history" as a group.

To more readily construct a list of ethnic groups by countries, Fearon (2003) uses the idea of "radical categories," and seeks for groups that meet their features as much as possible in assembling the list.[88] Fearon enumerates the following features of a prototypical ethnic group: membership in the group is reckoned primarily by descent by both members and non-members; members are conscious of group membership and view it as normatively and psychologically important to them; members share some distinguishing cultural features, such as common language, religion, and customs; these cultural features are held to be valuable by a large majority of members of the group; the group has a homeland, or at least "remembers" one; the group has a shared and collectively represented history as a group; and the group is potentially "stand alone" in a conceptual sense.

It is noteworthy that Fearon allows religious groups as long as they meet the first two conditions, i.e. membership based on descent and self-consciousness as a group. The

[86] In response to the definitional problems resulting from vague everyday meaning of key concepts, some scholars argue for stipulating or legislating precise definitions of the concepts in question. Fearon and Laitin (2000) disagree. For them, it is important to be able to map the researcher's concepts onto the ordinary language terms in which the hypothesis is originally expressed. Otherwise, it is very hard for researchers to give real-world examples of their statistically findings without slipping into ordinary language meanings of the variables.

[87] However, for many scholars, such as Chandra (2006), Horowitz (1985), and Young (1976), "we" is defined in part by "they." Ethnicity is thus a comparative concept for many scholars.

[88] Developed by linguists and cognitive scientists, radical categories help people understand the meaning of a concept X. Less prototypical categories with fewer characteristics than radical categories may still be validly classed as Xs, at lease in some situations (Fearon 2003).

majority of the groups on Fearon's list meet all the conditions quite well, with a few exceptions in Asia and Africa where the extent to which conditions of groupness or a sense of common identity are met are unclear.

4.2.3.2 Alesina's Index of Ethnic Fractionalization

Compared with the most demanding definition of (prototypical) ethnic groups Fearon (2003) provides (at least to my knowledge),[89] Alesina et al. (2003) and Annett (2001) offer narrower definitions of ethnic groups in that they distinguish between multiple dimensions of ethnic differentiation. Alesina and his colleagues gather data on ethnic, linguistic, and religious groups (hereafter referred to as "Alesina data "). By ethnicity, they mean racial for the most part, and for the rest part, linguistic. For those countries whose ethnicity data largely reflects languages, such as many Sub-Saharan African and some European countries, including Belgium, Luxembourg, and Switzerland, these categorizations are in accordance with the judgment of ethnologists and anthropologists about the right definition of ethnicity in the countries.

Although it is unclear how Alesina and his colleagues distinguish between ethnic and linguistic groups (Fearon 2003), their broader ethnic index is more context-sensitive and better represents the true divisions across countries than their purely linguistic index. Furthermore, few ethnic minorities in the world are religious groups and even fewer of them have only religious identities. In the MAR dataset, only 20 out of a total of 233 ethnic groups belong to the category of militant sects.[90] Militant sects represent communal groups whose political status and activities are centered on the defense of their

[89] Because of his restrictive attention to groups comprising more than 1% of the population, Fearon's data on ethnic groups is slightly less disaggregated than Alesina et al. (2003), however.
[90] Gurr (1993) indicates that there are 49 militant sects. I check the MAR dataset and find that this is not the case.

religious beliefs. Among the 20 militant sects, only 8 groups define themselves solely or mainly by their religious beliefs (Gurr 1993). The statistics suggest that there exist so few "pure" religious groups in the world that using the index of religious fractionalization to do comparative studies will generally risk using an irrelevant dimension of ethnic diversity to account for the political behavior of interest. In sum, for the purpose of cross-national research, the Alesina data of ethnic fractionalization will in general be more useful than their indices of linguistic and religious fractionalization.[91]

4.2.3.3 Annett's Index of Ethnic Fractionalization

Annett (2001) collects his list of ethnolinguistic groups by the definition conceptually related to the widely used Soviet data on *Atlas Narodov Mira*.[92] Taylor and Hudson (1972) summarized the Soviet data as the index of ethnolinguistic fractionalization (often referred to as ELF).[93] The Soviet team used mainly language to define groups, but sometimes used race and national origin as well. This common Eastern European assumption that language characterizes ethnicity results in a biased list of groups in some countries, such as in Latin America, where other cultural criteria mark ethnicity. Despite this similar weakness, the Annett data is privileged over the ELF index for the ELF data is by now, more than 40 years out-of-date, while the Annett data is

[91] One major difference between the Fearon and the Alesina ethnic indices lies in the fact that Fearon allows religious groups in some conditions, while Alesina and his associates do not.

[92] Roeder (2001) also develops alternative estimates of ethnolinguistic fractionalization. He calculates the ELF in three different ways in his data for 1961 and 1985. Compared with Taylor and Hudson (and probably also with Alesina and his colleagues as well as Annett), Roeder is more consistent in deciding ethnic breakdowns. His consistent rules may not have that in its favor, that they will be less likely to help us find functionally equivalent groups, in that the issues with salience differ across countries. For the importance of locating functionally equivalent groups, please refer to the following discussion. This dissertation does not discuss Roeder's indices in detail, given that both Roeder's estimates and Annett's estimates rely on the old ELF index to some extent and that these two estimates display much similarity with only a few exceptions for the sample of this dissertation.

[93] In addition to his measurement of ethnolinguistic diversity, Annett also builds an index of religious fractionalization.

constructed based on sources that are 20 years more recent. [94] Moreover, the Annett index has a larger sample size than the ELF index (150 vs. 119 countries). For research doing time-series cross-sectional analyses with 1980s as the starting point of the data, like this dissertation, the Annett index arguably constitutes a better choice than the ELF index.

4.2.3.4 Which is Better?

These new indices of ethnic fractionalization that Fearon, Alesina and his colleagues, as well as Annett construct using different lists of ethnic groups have their own strengths and weaknesses. Both Alesina's and Annett's disaggregated indices outperform Fearon's index in the respect of better capturing the presence of multidimensional ethnic identities in each polity. The other side of the coin is that Annett and Alesina and his colleagues "leave it up to the researcher to decide which measure she should employ, and they provide no guidance about how she should make this decision" (Posner 2004: 852). Scholars need to make a decision in this obvious trade-off between a choice that is easy but deviates from the social reality that ethnic identities are multidimensional, and a choice that is closer to the social reality but provides no guidance about which dimension of ethnicity is relevant in a specific *state*.[95]

In terms of defining ethnic groups more clearly and in a way that better approximates to the features of socially relevant groups identified by people, Fearon does a better job, however. In their measures of ethnic diversity, Alesina and his associates focus mostly on race and Annett cares generally about language. Fearon constructs his

[94] The Alesina and Fearon indices are also better than the ELF index in this respect of using more recent sources. For some, who are concerned about the problem of endogeneity, this may be considered a shortcoming. Please refer to the following discussion for more detail.

[95] I do not face this dilemma. As aforementioned, for most cases of my sample, the disaggregated measures of *ethnic or ethnolinguistic* fractionalization that Alesina and his colleagues as well as Annett provide serve as a better choice than their indices of religious and/or linguistic fractionalization.

data using the definition that better reflects what people in the country consider as the most socially relevant ethnic groups (Fearon 2003). He thus provides a better measure of social heterogeneity from the perspective of Norris (2002) that the distinctions used to differentiate ethnic identities and the salience of ethnic cleavages vary from one society to another, and that "for consistent comparison the aim was to identify the functionally equivalent groups across nations" (Norris 2002: 223).

Some researchers may disagree if their objective is simply to assess the effects of different social cleavages (Fish and Brooks 2004). Moreover, the difference between Fearon's and the other indices in terms of their capability to find functionally comparable groups may not be one in kinds, but rather one in degrees. Two reasons may explain why. First, while Alesina and his associates and Annett put different weight on language and race, they use both criteria to define ethnicity. As a result, they may collect quite similar lists of ethnic groups for quite a few countries.[96] Most groups reckoned by race and language may be identified by descent as well. If so, there would be no significant difference distinguishing Fearon's list of ethnic groups from others'. Second, all the indices suffer from the same potential mismatch between the measure and the mechanism of behavior that researchers use their data to investigate. Specifically, all the scholars discussed here, including Fearon who encode *socially* relevant ethnic groups, over-count *politically* irrelevant groups as ethnic. For example, while these scholars consider Sub-Saharan Africa considerably fractionalized with the mean values of ethnic fractionalization ranging between 0.66 and 0.71, Posner (2004) counts only politically relevant groups and gets a much lower mean value for this region of 0.38.

[96] These scholars do not make their lists of groups available, so this possibility cannot be confirmed in this dissertation.

Because of these reasons, it is not surprising to find high correlations and broad similarity between these fractionalization indices (Alesina et al. 2002; Fearon 2003).[97] That being said, one should not ignore the differences between these indices without doing any robustness check, either. This dissertation will do sensitivity tests using all the three aforementioned indices to derive the effective number of ethnic groups, one by one, to see whether different indices result in different findings.

4.2.3.5 The Way of Using these Indices

While not all the authors of the fractionalization indices make available the data about the population shares of each ethnic group on their lists, these indices help derive the effective number of ethnic groups. Despite the differences in the merits of each index, all the three indices are computed using the Herfindahl formula.

$$fractionalization_j = 1 - \sum_{i=1}^{N} s_{ij}^2$$

where s_{ij} is the share of group i (i=1…N) in country j.

The logic behind this expression is to measure the probability that two randomly selected individuals from a population belong to different groups. However, the expression also conveys a rough idea about the effective number of ethnic groups. When there are two equal-sized groups, the fractionalization score is 0.5. Generally speaking, the larger the populations of an ethnic majority (or the largest group), the smaller the fractionalization score for a country. Fearon's plots on ethnic structures show clear-cut regularity between a fractionalization score smaller than 0.61 and the presence of an ethnic majority. Because of this regularity, though unclear about the exact ethnic profiles

[97] For example, the correlation between the Alesina and the Annett data is as high as 88.85 (Alesina et al. 2002).

for each country, fractionalization indices tell us whether there is a majority group in a specific polity. Since the nonexistence of a majority group should correlate highly with the presence of more than two groups, I use 0.61 as the cut point to create a variable of *Fractionalization* with 0 and 1 indicating cases with two and more than two groups, respectively.

Before discussing the last key variable, spatial distributions of ethnic groups, I should briefly explain why I take ethnicity (or connectedly the number of ethnic groups) as exogenous and why I make a change in the Alesina data.

4.2.3.6 Endogeneity of Ethnicity as Social Constructions

Many scholars acknowledge ethnic groups as social constructions, which experience histories of growth and shrinkage, merge and separation (Laitin and Posner 2001; Herrera and Kapur 2005), and claim that, without justification, ethnic distinctions cannot be supposed to be fixed and completely exogenous to other theoretically relevant variables (Alesina et al. 2002; Fearon 2003). Some thus argue for the use of out-of-date ethnic fractionalization indices to get rid of the endogeneity problem.

While safely exogenous, out-of-date indices have their own problem, i.e. what was measured bear little resemblance to the contemporary ethnic landscape whose effects are being investigated. Between the choices, endogenous vs. invalid data of ethnic fractionalization, it is likely that many scholars will choose the former.

Furthermore, ethnic differentiation may shift over time, but fractionalization indices are generally taken as exogenous in most cross-national studies. In fact, group shares have remained considerably stable over time and changes have only a slight impact on

the measures (Alesina et al. 2002),[98] as proved by Posner's decade measures of fractionalization and my own estimates.

Posner (2004), who views ethnicity as endogenous, encodes decade values for politically relevant ethnic groups in 42 African countries. Among them, 34 countries saw no variations in their fractionalization scores during 1960-1990, however. Of the 8 countries whose fractionalization values did vary during that period of 30 years, only 3 states experienced changes greater than 15%. I examine the group shares in each country on the *World Factbook* from 1985 to 2003, the time horizon of the main analyses in this dissertation, and reach a similar conclusion: ethnic breakdowns and group shares indeed display a high level of constancy. Given the shorter time period studied in this dissertation, only 19 years, my finding may not be surprising. Some scholars consider plausible that group shares stay constant at the 30 year horizon.

Because of these reasons, it should be justifiable to use the fractionalization indices created more recently by Alesina et al. (2003), Annett (2001), as well as Fearon (2003), and take them as exogenous in my dissertation analyses.

4.2.3.7 A Minor Modification to the Data of Alesina and his Associates

These three indices of ethnic fractionalization are used in this dissertation almost without changes to avoid the temptation to modify the data in a way that makes them best support my theory.[99] I revise none but the India's score on the Alesina data, which

[98] Descent-based attributes that define ethnic categories are, on average, difficult to change in the short term (Chandra 2006). Although individuals can change between identity categories by combining and recombining elements from their set of attributes differently, their choices are constrained. These two properties explain why constrained change can be legitimately associated with ethnic identities in the short term, why group shares have remained considerably stable over time, and why changes have only a slight impact on the measures of ethnic fractionalization.

[99] The temptation exists because there are a variety of plausible ways to divide a population into categories of identity (Fearon 2003).

counter-intuitively defines India as a highly homogenous state. I do so because of the following additional reason.

While Alesina and his colleagues rely on racial differentiations to calculate India's score of ethnic fractionalization, other scholars reject race as the most relevant dimension of India's ethnic identity. Manor (1996) indicates that the most important ethnic identities in India are those based on religion and language. Fearon's data and the MAR dataset support Manor's view. All the groups but Sikhs on Fearon's list for India have their own languages and are defined as linguistic groups in the CIA World Factbook.[100] Among the 9 minority groups of India on the MAR dataset,[101] all except two, the Sikhs and Muslims,[102] are defined either solely by language or by both language and religion. If India's score of linguistic fractionalization is used, then India becomes a highly heterogeneous state. Even if religion represents the most important cleavage in Indian society, each of the religions has so many internal differences of practice and doctrine that any correct estimate of India's religious fractionalization should lead to the same conclusion as when linguistic breakdowns are used (Manor 1996; Wilkinson 2003).[103] I thus replace India's score of ethnic fractionalization with that of linguistic fractionalization.[104]

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[100] Fearon's list for India includes groups of Hindi speakers (39.9%), Bengali (8.22%), Telusu (7.8%), Marathi (7.38%), Tamil (6.26%), Gujarati (4.81%), Kannada (3.87%), Malayalam (3.59%), Oriya (3.32%), Punjabi (2.76%), Sikhs (2%), and Assamese (1.55%).

[101] They include Assamese, Bodos, Kashmiris, Mizos, Muslims, Nagas, Scheduled Tribes, Sikhs, and Tripuras.

[102] These two are religious groups according to the CIA World Factbook and Manor (1996).

[103] The internal differences of Hinduism also have their political relevance. Manor (1996) pointed out that one of the main impediments that prevent the Hindu party from becoming a parliamentary majority is traditional Hinduism, a fact that implies the inadequacy of treating Hinduism as a complete whole and the usual underestimation of the true level of religious fractionalization in India.

[104] There have been some quibbles about whether the concept of ethnicity should embrace groups differentiated by castes. Even if castes should be remained, India is still an ethnically heterogeneous state. For one thing, textbooks usually put the number of castes in contemporary India at between 6,000 and 10,000 (Wilkinson 2003). For another, the government of India has officially documented castes and subcastes to determine those deserving reservation through the census. The government lists consist of

4.2.4 Ethnic Spatial Distributions

The MAR dataset provides this group-specific variable. Group concentration takes on four possible values, with 0 = widely dispersed, 1 = primarily urban or minority in one region, 2 = majority in one region, others dispersed, and 3 = concentrated in one region. I have created a dummy variable of *Concentration* recoding the original values of 0 and 1 into 0 as well as 2 and 3 into 1, with 0 and 1 representing dispersed and concentrated distributions, respectively.

4.2.5 Control Variables

In addition to these institutional and contextual variables of interest, I have controlled for other relevant factors. There are two dichotomous control variables. Any federal system receives a score of 1 on the variable of *Federal system* (0 otherwise).[105] Although there are diverse views about the effects of federalism (Nordlinger 1972; Gurr 1993; Bunce 1999; Lijphart 1999; Nancy 2002), the empirical evidence of large-N studies suggests that the positive or non-effect view is correct (Cohen 1997, Saideman et al. 2002).[106] I thus expect that this variable will have a negative or zero coefficient in the statistical sense.

A *first election* is coded as 1 for the year in which a country is having its first

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scheduled castes (with 16% of the total population of India), scheduled tribes (7%) and other backward classes (32%). Using these figures to calculate India's fractionalization index still qualify India for a ethnically heterogeneous state.

[105] Saideman and his associates (2002) provide me with the data of this variable. I double check the data with that on the Forum of Federations at www.forumfed.org, and find no problem. Saideman et al. (2002) coded federalism on the basis of whether substate units had substantial decision-making power.

[106] Saideman and his colleagues in fact anticipate different effects of federalism on violent and nonviolent ethnic conflict. Specifically, they expect that while "ethnic protest is more likely in systems characterized by federalism, ethnic rebellion is less likely in systems characterized by federalism" (Saideman et al. 2002: 112). These notions seem plausible, but the data they use are about the intensity of conflict and, hence cannot help test their hypotheses. Institutions should have similar effects on the intensity of ethnic conflict. Please refer to Chapter 3 for details. I therefore hypothesize that federalism reduces the intensity of both violent and nonviolent ethnic conflict.

election and 0 for all the other years. Since the uncertainty regarding who will rule and the feeling of threat felt by ethnic groups are highest in first elections, we should expect a positive coefficient from this variable. I have constructed this variable based on Europa World, IFES's Election Guide, Keesing's Record of World Events, and World Factbook.

Enduring regime, log GDP per capita, change in GDP per capita, [107] *and differences indices* are the other control factors. *Enduring regime* is coded as an indicator of polity durability based on the number of years since the last regime transition (defined by a three point change in the POLITY score) or since 1900 (whichever came last in time).[108] Since (severe) ethnic conflict is more likely when regimes experience transitions, older regimes should reduce ethnic conflict vis-à-vis younger regimes (Saideman et al. 2002; Fearon and Laitin 2003).

Rich democracies have more resources as well as better overall financial, administrative, police, and military capabilities than poor countries to accommodate the demands of ethnic groups and to prevent insurgents from being able to survive and prosper. Therefore, richer countries with higher *log GDP per capita* tend to display lower levels of conflict (Saideman et al, 2002; Fearon and Laitin 2003). Furthermore, because people are more likely to blame other groups for their distress in periods of economic decline, negative *change in GDP per capita* should lead to higher levels of conflict.

It is generally argued that more political, economic, and cultural differentials between dominant and minority groups mean higher likelihoods of ethnic conflict (Gurr 1993).[109] The MAR dataset provides three differentials indices, The *political differentials*

[107] The World Development Index Online at devdata.worldbank.org/dataonline provides these two economic variables.
[108] This variable comes from the Polity IV's variable "durable."
[109] Fish and Brooks (2004) provide empirical evidence that diversity does not necessarily hurt democracy, contrary to the common view. However, since their dependent variable is not ethnic conflict, it is unknown

index measures access to power and to civil service, recruitment, voting rights, etc. and ranges from no negative differentials (0) to serious differentials (4). The *economic differentials* index measures differentials in economic status and positions among groups, and ranges from a value of -2 for most advantaged groups to 4 for most disadvantaged groups. The *cultural differentials* index focuses on how distinct groups are in terms of their differences in ethnicity/nationality, language, religion, and the like, with higher values indicating more diversity.

Having discussed all the variables of interest and the control factors of this dissertation, I can now specify the models.

4.3 Model Specifications

There are two types of government structures and electoral systems as well as two dichotomous contextual factors, so I should include 15 dummy variables in my model, with the constant representing the baseline category. The baseline category is the combination with all the four institutional and contextual factors = 0. I include only 14 dummy variables, however. Because there are no dispersed groups who face multiple competitors and live under presidential-SMD systems in my sample (i.e. there are no cases with *Concentration* = 0, *Fractionalization* = 1, *Parliamentary*=0, and *PR* = 0), I should exclude the variable of *Fractionalization* from my model.[110]

The following equation with the 14 variables of interest and 8 control factors represents the basic model in this dissertation for both violent and nonviolent ethnic conflict.

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whether the same conclusion that diversity does not mean bad things can be reached.

[110] The facts that there are no observations with *Concentration*=0, *Fractionalization*=1, *parliamentary*=0, *and PR*=0, and that observations with all these four variables=0 represent the baseline category imply that the low-order coefficient of *fractionalization* cannot be estimated.

$$
\begin{aligned}
\text{ethnic conflict}_{it} = {} & \alpha + \beta_1 \text{parliamentary}_{it} + \beta_2 \text{PR}_{it} + \beta_3 \text{concentration}_{it} \\
& + \beta_4 \text{PAR}_{it} * \text{PR}_{it} + \beta_5 \text{PAR}_{it} * \text{fractionalization}_{it} + \beta_6 \text{PAR}_{it} * \text{concentration}_{it} \\
& + \beta_7 \text{PR}_{it} * \text{fractionalization}_{it} + \beta_8 \text{PR}_{it} * \text{concentration}_{it} \\
& + \beta_9 \text{fractionalization}_{it} * \text{concentration}_{it} + \beta_{10} \text{PAR}_{it} * \text{PR}_{it} * \text{fractionalization}_{it} \\
& + \beta_{11} \text{PAR}_{it} * \text{PR}_{it} * \text{concentration}_{it} + \beta_{12} \text{PAR}_{it} * \text{fractionalization}_{it} * \text{concentration}_{it} \\
& + \beta_{13} \text{PR}_{it} * \text{fractionalization}_{it} * \text{concentration}_{it} \\
& + \beta_{14} \text{PAR}_{it} * \text{PR}_{it} * \text{fractionalization}_{it} * \text{concentration}_{it} \\
& + \beta_{15} \text{federal system}_{it} + \beta_{16} \text{enduring regime}_{it} + \beta_{17} \text{first election}_{it} \\
& + \beta_{18} \text{log GDP per capita}_{it} + \beta_{19} \text{change in GDP per capita}_{it} \\
& + \beta_{20} \text{political differentials}_{it} + \beta_{21} \text{economic differentials}_{it} + \beta_{22} \text{cultural differentials}_{it} + \varepsilon_{it}
\end{aligned}
$$

where PAR stands for parliamentary, i represents group i ($i = 1, \ldots, N$), and t denotes time t ($t = 1985, \ldots, 2003$).

As I concluded in the earlier section, the Beck and Katz approach will be applied to analyze the stationary nonviolent ethnic conflict. However, if the problem of serial correlation remains, a between-effects model will replace the Beck and Katz approach. I will also perform a hierarchical model as a sensitivity test to avoid the Type I error. For nonstationary violent ethnic conflict, I will perform a ZIOP model to deal with the problem resulted from its excessive zero observations, in addition to a between-effects and a hierarchical model.

When the Beck and Katz approach is used, a lagged dependent variable will be added to the right hand side of the above equation. The mean values of the variables of the equation become the covariates that I use when I perform a between-effects regression.

I will also perform the following hierarchical model as a sensitivity test to avoid the Type I error potentially caused by a between-effects model which neglects the nested structure of my dataset. Given that there are only 70 countries in my sample, I will use the following random-intercept model to investigate the relations between the variables of

interest.[111]

$$\text{Level 1: Group Level}$$

$$\text{ethnic conflict}_{ij} = \beta_{0j} + \beta_{1j}\text{concentration}_{ij} + \beta_{2j}\text{political differentials}_{ij} + \beta_{3j}\text{economic differentials}_{ij} + \beta_{4j}\text{cultural differentials}_{ij} + \varepsilon_{ij}$$

$$\text{Level 2: State Level}$$

$$\begin{aligned}\beta_{0j} &= \gamma_{00} + \gamma_{01}\text{parliamentary}_j + \gamma_{02}\text{PR}_j + \gamma_{03}\text{PAR}_j * \text{PR}_j + \gamma_{04}\text{PAR}_j * \text{fractionalization}_j \\ &\quad + \gamma_{05}\text{PR}_j * \text{fractionalization}_j + \gamma_{06}\text{PAR}_j * \text{PR}_j * \text{fractionalization}_j \\ &\quad + \gamma_{07}\text{federal system}_j + \gamma_{08}\text{enduring regime}_j + \gamma_{09}\text{first election}_j \\ &\quad + \gamma_{10}\text{log GDP per capita}_j + \gamma_{11}\text{change in GDP per capita}_j + \zeta_{0j} \\ \beta_{1j} &= \gamma_{10} + \gamma_{11}\text{parliamentary}_j + \gamma_{12}\text{PR}_j + \gamma_{13}\text{fractionalization}_j \\ &\quad + \gamma_{14}\text{PAR}_j * \text{PR}_j + \gamma_{15}\text{PAR}_j * \text{fractionalization}_j + \gamma_{16}\text{PR}_j * \text{fractionalization}_j \\ &\quad + \gamma_{17}\text{PAR}_j * \text{PR}_j * \text{fractionalization}_j\end{aligned}$$

$$\text{where i represents group i (i} = 1,\ldots,\text{N), and j denotes state j (j} = 1,\ldots,\text{J)}$$

The composite hierarchical model of these three equations almost equals the between-effects model. The only difference between them lies in the fact that there is a random intercept, ζ_{ij}, in the hierarchical model.

The zero inflated ordered probit regression is more complicated. This method is new for the discipline and is worth a detailed discussion. I will do so and perform such a regression in Chapter 7. Before moving to Chapter 5, I should briefly discuss other sensitivity tests that I will do in order to ensure the robustness of my findings.

4.4 Robustness Checks

I will do some robustness checks in Chapter 5 and some in Chapter 7 to test whether

[111] If I have more states in my sample, I will use a model with not only a random intercept but also a random slope for the variable of *Concentration.*

there is endogeneity between political systems and conflict levels; whether dividing government structures into three categories, i.e. parliamentary, presidential, and semi-presidential systems, leads to different findings about the link between political systems and ethnic conflict; whether classifying some ambiguous cases as different government structures, or even excluding some of them from analysis changes my findings; whether excluding homogenous states from analysis results in different results; and whether treating ethnic conflict as an interval scale variable and ignoring my data's probability mass at a single value of 0 bias my findings.

Chapter 5: Government Structures, Electoral Systems, and Ethnic Conflict—A Statistical Assessment

This chapter offers hypothesis tests about political systems' impact. For the nonstationary rebellion data, I have performed a between effects and a hierarchical model. For the stationary protest data, the Beck and Katz approach has been applied. However, the problem of serial correlation still exists. A between-effects model has therefore replaced the Beck and Katz approach. A hierarchical model has also been performed to avoid the Type I error.[112]

The findings regarding the combined effects of government structures and electoral systems on the intensity of ethnic conflict are striking. Four findings stand out. First, presidential-PR systems generally provide a better preventive framework for addressing ethnic conflict for countries with two ethnic groups. Second, for countries with multiple ethnic groups, the only institutional configuration they need to avoid is a parliamentary-SMD system.[113] These statistical findings are important because they counter the conventional wisdom that parliamentary-PR systems better handle inter-group relations, and better prevent the escalation of ethnic conflict than other systems. These findings prove that there is no one-size-fits-all solution to ethnic problems, and my dissertation helps provide institutional prescriptions that fit the needs of specific divided societies.

Third, institutions generally have similar but stronger effects on violent than on nonviolent ethnic conflicts. This finding suggests that ethnic conflicts, be it violent or

[112] Please refer to Chapter 4 for details about why I perform these, instead of other, models, to test my hypotheses.

[113] Countries with multiple ethnic groups need to carefully design their presidential electoral systems if these countries want to use presidential-PR systems. Please refer to the discussion on the test result of Hypothesis 2a for details.

nonviolent, require the same preventive institutional arrangements. This implication provides good news to institutional designers whose countries have suffered from both types of ethnic conflict. Fourth, spatially concentrated groups become less combative when they have more say in policy-making. This finding contradicts many existing studies that assume a uniform conflict propensity of such groups, and highlights the importance of institutional engineering in ethnically divided societies. All of these four findings stand up to empirical analysis when using different models.

In this chapter, I first discuss the empirical evidence about the link between government structures, electoral systems, and violent ethnic conflict, i.e. anti-regime rebellion. I then discuss the statistical findings about a similar but weaker link between these political institutions and nonviolent ethnic conflict, i.e. anti-regime protest. I conclude this chapter with a section on robustness checks.

5.1 Major Hypotheses

I reiterate the hypotheses about the institutional effects on violent rebellion to facilitate the discussion of my statistical findings. Institutions are expected to have similar, though weaker, effects on both violent and nonviolent ethnic conflict. I therefore do not repeat the hypotheses about the institutional impact on nonviolent protest. My theory expects the following hypotheses to be true.

> Hypothesis 1a: In cases involving a concentrated minority group facing only one opposition group, ceteris paribus, the expected level of violent rebellion is less intense in countries with presidential and PR systems than in countries with most, if not all, of the other institutional configurations.

This hypothesis reflects the advantages of presidential-PR systems in such cases. This institutional configuration better prohibits one group from gaining total control of power because of checks and balances that its government structure promotes. Furthermore, the PR component of this institutional combination better guarantees a concentrated minority group higher proportionality of votes to seats. In sum, presidential-PR systems better maximize the sum of probabilities for ethnic minorities to influence policy-making than any other institutional configurations for cases which involve a concentrated minority group facing only one rival group.

> Hypothesis 2a: In cases involving a concentrated minority group facing multiple rival groups, ceteris paribus, the expected level of violent ethnic conflict is less intense in countries with parliamentary-PR or with presidential-SMD systems than in countries with the other institutional configurations.

In cases involving a concentrated minority group facing multiple ethnic others, parliamentary-PR and presidential-SMD systems are preferable because they increase the possibility that the groups in question either share both executive and legislative powers with other groups or check and balance one another. The other two types of systems, parliamentary-SMD and presidential-PR systems, have some flaws. Parliamentary-SMD systems are undesirable because these systems tend to favor only a few groups who join coalition cabinets at the expense of many others who do not. This tendency exists because the use of SMD systems in the presence of more than two groups in a state is likely to discourage proportionality of votes to seats. Fewer groups will have representatives in a parliament, and fewer parties will be needed for the formation and survival of a coalition

cabinet. Consequently, fewer groups share both executive and legislative powers and feel secure in parliamentary-SMD systems. Presidential-PR systems are not preferable, either. Although PR systems ensure for concentrated groups fairer shares of seats, they tend to promote a fragmented parliament, which might cause a problem when presidential systems are in use. Specifically, ambitious presidents or semipresidents become dominant when they face such a weak, fragmented parliament. All the ethnic groups other than presidents' coethnics feel powerless and insecure and, hence, are more likely to engage in more intense ethnic conflict.

Up to this point, the discussion has focused on cases involving concentrated groups. There are two possibilities for dispersed groups. First, what works best for concentrated groups also works best for dispersed groups, holding the number of ethnic others in a state and other relevant variables constant. Second, no particular institutions better furnish dispersed minorities with a sense of security, ceteris paribus. Dispersed minorities have neither legitimacy nor capability to fight for their rights; such groups are essentially more peaceful, and institutional design is simply irrelevant to them. The following two sets of competing hypotheses summarize these arguments.

> $\text{Hypothesis}_{\text{alternative}}$ 3a: In cases involving a spatially dispersed minority group facing only one opposition group, ceteris paribus, the expected level of violent conflict is less intense in countries with presidential and PR systems than in countries with most, if not all, of the other institutional configurations.
>
> $\text{Hypothesis}_{\text{null}}$ 3a: In cases involving a spatially dispersed minority group facing only one opposition group, ceteris paribus, the expected level of violent conflict is neither less nor more intense in any countries.

Hypothesis$_{alternative}$ 4a: In cases involving a spatially dispersed minority group facing multiple rival groups, ceteris paribus, the expected level of violent conflict is less intense in countries with parliamentary-PR than in countries with presidential-PR or parliamentary-SMD systems.

Hypothesis$_{null}$ 4a: In cases involving a spatially dispersed minority group facing multiple rival groups, ceteris paribus, the expected level of violent conflict is neither less nor more intense in any countries.

Before testing these major hypotheses, I should reiterate briefly the effects of the control variables that I have discussed in Chapter 4. I expect that federalism reduces the intensity of ethnic conflict by providing segmental autonomy to ethnic groups, but some large-N studies fail to find supportive evidence. The estimate of *federal system* should therefore be negative or zero. *Enduring Regime* measures regime duration. This variable should negatively relate to the levels of ethnic strife because severe conflict is more likely when regimes experience transitions. *First election* should have a positive coefficient because the uncertainty regarding who will rule and the feeling of threat felt by ethnic groups are highest in first elections. Poor countries have less resources and lower capabilities to accommodate the demands of ethnic groups and to prevent insurgents from being able to survive and prosper. Furthermore, in periods of economic decline, people are more likely to blame other groups for their distress. Lower levels of *GDP per capita* and negative *change in GDP per capita* should therefore lead to higher levels of conflict. Finally, since more political, economic, and cultural differentials between dominant and minority groups are likely to result in greater ethnic grievances and misunderstanding,

Table 5.1: The Expected and Estimated Relations

between Control Variables and Ethnic Conflict

Variable	Expected Relations	BEM: Rebellion	HLM: Rebellion	BEM: Protest	HLM: Protest
Federal system	- or 0	-, -, +	-,-	+, +, +	+, +, +
Enduring regime	-	+*, +, +	+*, +	+, +, +	+, +, +
First election	+	+, +, +	+, +	-, -, -	-, -, -
Log GDP per capita	-	-**, -*, -*	-***, -*	-, -, -	-, +, -
Change in GDP per capita	-	+*, +, +*	+*, +	-, +, -	+, +, +
Politiacl differentials	+	+*, +*, +*	+, +	+, +, +	+, +, +
Economic differentials	+	-, -, -	-, -	+, -, +	+, -, +
Cultural differentials	+	+, +, +	+, +	+, +, +	+*, +**, +**

Note: BEM and HLM stand for between-effects and hierarchical linear models, respectively. Every variable in the between-effects model has three estimates because three indices of ethnic fractionalization have been used in turn in performing the analysis. The first, second, and third estimated signs associated with each variable are the ones that have been obtained when Alesina et al's, Fearon's, and Annett's fractionalization variables were used, respectively. Every variable in the hierarchical models for the rebellion data has only two estimated signs, however. When Fearon's fractionalization score is employed, there remains no meaningful variation in the state-level model and, hence, no need to specify additional random factor and perform a hierarchical model. Consequently, only the other two indices are useded in the analysis of hierarchical models. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

these three indices of *political, economic, and cultural differentials* should receive positive estimates.

5.2 The Results about Control Variables

I discuss the multivariate estimates of these control variables briefly because they are not the focus of this dissertation. Table 5.1 summarizes the expected and estimated relations between theses variables and violent and nonviolent ethnic conflict. Exact coefficients can be found on Tables 5.2, 5.11, 5. 21, and 5.30. Table 5.1 shows that between-effects and hierarchical models generally produce similar results, suggesting that the type I error does not constitute a particular concern when estimating these control variables' impact.

Only a few control variables have significant effects on rebellion. These variables include *enduring regime, log GDP per capita, change in GDP per capita,* and *political differentials.* As anticipated, ethnic groups in richer countries engage in less intense rebellion. Ethnic minorities with more access to power and to civil service, recruitment and voting rights are also likely to conflict more severely against their regimes. This variable of *Political differentials* loses statistical significance after additional random factor is included in analysis, however. Contrary to my expectation, ethnic groups in short-lived regimes and in periods of economic decline tend to engage in less serious rebellion.[114] These two variables are significant only when some indices of ethnic fractionalization are used, so there is no conclusive evidence of these factors' impact.

Almost no control variables significantly affect the intensity of protest. Only when performing a hierarchical model does the coefficient of *cultural differentials* become significant. Consistent with my expectation, the more culturally distinct minority groups are from dominant groups, the more intensely minorities protest against their regimes.

[114] One reason may explain why enduring regimes experience more intense rebellion than young democracies. Because new democracies may represent ethnic groups' peaceful settlement of disputes, less severe rebellion erupts in younger democracies. As a regime gets older, ethnic groups may become disenchanted with the systems and fight more intensely and violently against their regimes (Gurr 2000).

Table 5.2: Between-Effects Model: Rebellion, 1985-2003

	Alesina et al.		Fearon		Annett	
Variable	b	SE	b	SE	b	SE
Single Term						
PAR	-.07	.62	.14	.56	.01	.62
PR	-.17	.62	-.11	.59	-.07	.63
Con	.84	.57	.83	.54	.78	.57
Interactive Term						
PAR*PR	.11	.93	-.19	.85	-.11	.93
PAR*Frac	.29	.75	-.55	1.26	.23	.75
PAR*Con	-.50	.87	-.82	.73	-.39	.88
PR*Frac	-.26	.98	-.23	.94	-.47	.83
PR*Con	-.57	.74	-.53	.71	-.81	.77
Frac*Con	-1.06**	.51	-.84*	.49	-.38	.50
PAR*PR*Frac	-.02	1.45	.93	1.77	.32	1.36
PAR*PR*Con	1.54	1.28	1.91*	1.13	1.79	1.30
PAR*Frac*Con	2.11**	1.06	3.61**	1.43	1.49	1.06
PR*Frac*Con	1.51	1.17	1.29	1.12	1.52	1.06
PAR*PR*Frac*Con	-3.43*	1.83	-5.31**	2.07	-3.62**	1.77
Control Variable						
Federal system	-.36	.29	-.14	.26	.27	.29
Enduring regime	.01*	.00	.00	.00	.01	.00
First election	.69	.92	.59	.89	.25	.90
Log GDP per capita	-.29**	.12	-.22*	.12	-.23*	.12
Change in GDP per capita	8.43*	5.11	7.49	4.79	8.97*	5.12
Political differentials	.17*	.10	.17*	.10	.18*	.10
Economic differentials	-.02	.08	-.04	.08	-.04	.08
Cultural differentials	.10	.11	.07	.10	.14	.11
Constant	1.79	1.17	1.31	1.14	1.15	1.20
R-squared: Between	.31		.36		.30	
N of Groups	171		171		171	
White, χ^2	149.58 (d.f.: 147)		135.07 (d.f.: 144)		146.91 (d.f.: 148)	

Note: PAR, PR, Con, and Frac stand for parliamentary systems, proportional representation systems, group concentration, and ethnic fractionalization, respectively. White: White test for heteroskedasticity. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

After discussing the coefficients of these control variables, I can now proceed to examine the empirical evidence about the link between government structures, electoral systems, and rebellion.

5.3 The Results about Primary Variables

It has been known that when a statistical model includes interactive terms, the statistical significance of the lower-order coefficients is largely unimportant (Braumoeller 2004). Table 5.2 presents the results of a between-effects model using the levels of rebellion as the dependent variable. The table shows that only a few of the primary variables of this paper (be it an interactive term or not) significantly affect the levels of rebellion. The important question, however, is whether the marginal effects of institutional configurations are significant given a certain ethnic context.

5.3.1 The Impact of Political Systems on Rebellion

5.3.1.1 Concentrated Groups Facing One Rival Group

Table 5.3 presents the predicted rebellion levels of each political system in cases involving concentrated groups facing only one rival group. In this chapter, all the control variables are held at their sample means in the calculation of any predicted value. As expected, in cases involving concentrated groups facing only one rival group, states using presidential-PR systems generally have the lowest levels of rebellion. The only exception arises when using Fearon's fractionalization scores. Presidential-PR systems become inferior to parliamentary-SMD systems by being associated with more intense conflict. The difference is only 5% and is statistically insignificant, however.

Table 5.4 presents the test results of the marginal combined effects of government

Table 5.3: Predicted Levels of Rebellion
in Cases Involving Concentrated Groups Facing One Rival Group
(Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 1: PAR-PR Systems	1.46 (1.16)	1.40 (1.12)	1.34 (1.19)
Type 2: PRE-PR Systems	0.38 (1.01)	0.37 (0.99)	0.04 (1.06)
Type 3: PAR-SMD Systems	0.55 (1.09)	0.32 (0.96)	0.53 (1.12)
Type 4: PRE-SMD Systems	1.12 (1.03)	1.01 (1.01)	0.92 (1.09)

Note: Types in gray areas represent appropriate institutions for this specific context. Standard errors are in parentheses. ****p*<.01; ***p*<.05; **p*<*.10*; 2-tailed tests.

Table 5.4: Marginal Combined Effects of Political Institutions
in Cases Involving Concentrated Groups Facing One Rival Group

	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 2 vs. Type 1	-1.08	3.64**	-1.03	3.80**	-1.30	4.85**
Type 2 vs. Type 3	-0.17	0.07	0.05	0.01	-0.49	0.54
Type 2 vs. Type 4	-0.74	2.96**	-0.64	2.35*	-0.88	3.44**

Note: d stands for the differences between Type 2 and the other types, and is calculated by subtracting the predicted rebellion levels of the other types, one by one, from that of Type 2. ****p*<.01; ***p*<.05; **p*<*.10*; 1-tailed tests.

structures and electoral systems. All save one result are in accordance with the expectation of my theory. In cases involving concentrated groups facing only one rival group, presidential-PR systems uniformly outperform parliamentary-PR and presidential-SMD systems in managing ethnic conflict. Specifically, concentrated groups who face only one opposition group and whose countries change their institutions from parliamentary-PR to presidential-PR systems will be associated with 74%-97% lower

levels of rebellion, on average. The same groups will be connected with an average of 63%-96% lower degrees of violent conflict if the pre-reform systems of their countries are presidential-SMD systems. The difference between presidential-PR and parliamentary-SMD systems is statistically insignificant, however, although numerically presidential-PR systems generally outperform parliamentary-SMD systems. In sum, these findings provide strong evidence for Hypothesis 1a. In cases involving a concentrated minority group facing only one opposition group, ceteris paribus, the expected level of violent rebellion is less intense in countries with presidential and PR systems than in countries with most, if not all, of the other institutional configurations.

5.3.1.2 Concentrated Groups Facing Multiple Rival Groups

Table 5.5 presents the predicted rebellion levels of each political system in cases involving concentrated groups coexisting with multiple ethnic others. Rebellion tends to be least severe either in parliamentary-PR systems (when using Annett's data) or in presidential-SMD systems (when using Alesina et al.'s and Fearon's variables). According to Hypothesis 2a, these two types are the ones which provide the highest level of power sharing to concentrated minority groups who compete for power with many other ethnic groups.

Table 5.6 presents the test results of these political systems' marginal effects in cases involving the ethnic groups in question. The results provide supportive evidence for Hypothesis 2a to a lesser extent. On the one hand, parliamentary-PR and presidential-SMD systems uniformly outperform parliamentary-SMD systems. Specifically, concentrated groups who face multiple rival groups and whose countries change their political institutions from parliamentary-SMD systems to parliamentary-PR

Table 5.5: Predicted Levels of Rebellion
in Cases Involving Concentrated Groups Facing Multiple Rival Groups
(Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 5: PAR-PR Systems	0.61 (1.11)	0.29 (1.12)	0.44 (1.15)
Type 6: PRE-PR Systems	0.59 (0.98)	0.59 (0.94)	0.73 (1.00)
Type 7: PAR-SMD Systems	1.90** (0.85)	2.55*** (0.82)	1.89** (0.88)
Type 8: PRE-SMD Systems	0.07 (0.86)	0.17 (0.84)	0.54 (0.89)

Note: Types in gray areas represent appropriate institutions for this specific context. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 5.6: Marginal Combined Effects of Political Institutions
in Cases Involving Concentrated Groups Facing Multiple Rival Groups

	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 5 vs. Type 6	0.02	0.00	-0.30	0.18	-0.29	0.20
Type 5 vs. Type 7	-1.29	3.76**	-2.26	9.57***	-1.45	4.64**
Type 8 vs. Type 6	-0.52	0.99	-0.42	0.74	-0.19	0.15
Type 8 vs. Type 7	-1.83	10.12***	-2.38	17.17***	-1.35	6.00***

Note: d is calculated by subtracting the predicted rebellion level of a theoretically undesirable system (i.e. Types 6 and 7) from that of a desirable one (i.e. Types 5 and 8). ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

systems will be associated with a 68%-89% decrease in their rebellion levels, on average. Changing from parliamentary-SMD systems to presidential-SMD systems corresponds to an even higher reduction, i.e. 71%-96%, in the intensity of these groups' rebellion. On the other hand, these two desirable systems, parliamentary-PR and presidential-SMD systems, do not perform better than presidential-PR systems. On the contrary, presidential-PR

systems manage ethnic rebellion equally well as the two desirable systems and outperform parliamentary-SMD systems.[115]

Examining the presidential electoral systems in states using presidential-PR systems helps unravel this unexpected no differences between parliamentary-PR and presidential-SMD systems on the one hand and presidential-PR systems on the other hand. Some countries, such as Kenya,[116] require special distributions of presidential votes across regions for a candidate to win the presidency. Other countries, such as Philippine, hold separate elections for presidents and vice presidents. Still others with multiple ethnic groups elect their presidents by a run-off electoral system, which helps pick a majority winner instead of a mere plurality one. Examples include Brazil, Colombia, Ecuador, Ghana, Indonesia, Madagascar, Mali, Niger, Peru, and Senegal.[117]

Some may question the desirability of majority-run-off systems in that Horowitz recommends vote-pooling AV systems as better alternatives to facilitate moderate ethnic politics. Both systems generate similar practical effects, however (Fishburn 1986; Wright 1986; Lijphart 2002).[118] In fact, the two systems are virtually identical if only one candidate is to be elected and if there are only two or three viable candidates among the nominees (Fishburn 1986). These two conditions usually hold in presidential elections where the fact that only one candidate wins leads to the presence of only two or three

[115] The difference between presidential-PR and parliamentary-SMD systems in terms of their effects is statistically significant at the 99% confidence level when Alesina et al's and Fearon's fractionalization variables are used. When Annett's data is employed, the significance level is 95%.

[116] In addition to receiving the largest number of votes in absolute terms, Kenya's presidential candidates must also win 25% or more of the votes in at least five of Kenya's seven provinces and one area to avoid a run-off.

[117] The constitution of the republic of Senegal even stipulates that candidates may not campaign predominately on ethnic or regional groups. Arguably, this clause helps improve ethnic relations.

[118] Some might think that using a preferential AV system would give voter higher satisfaction by permitting parties with similar policies and voters to nominate or support their own candidates without risk assisting the election of candidates of rival parties. This turns out not to be the case, however. In the AV elections in Australia, for example, usually 40% and 50% of the total voters do not see the election of the candidates they support (Wright 1986).

viable competitors. Regardless, all these electoral rules employed in states using presidential systems and having multiple ethnic groups somehow constrain a president's incentives to take care of only the needs of his group to the extent that hurts the interests of ethnic others, and encourage a president to propose more encompassing and accommodative platforms.

One way to directly test this notion is to add presidential electoral systems and all the consequent multiplicative terms into the model, but this will cost about additional 7 degrees of freedom. Worse yet is the fact that the presidential electoral systems in presidential regimes with multiple ethnic groups have almost no variations, making their impact hard to be estimated.

In sum, as expected from Hypothesis 2a, Parliamentary-PR and presidential-SMD systems uniformly outperform parliamentary-SMD systems in cases involving concentrated groups facing multiple rival groups. Contrary to my expectation, presidential-PR systems perform equally well as the two desirable systems. The fact that heterogeneous states using presidential-PR systems employ presidential electoral systems which promote presidents' incentives to be more encompassing and accommodative explains this unexpected finding. Parliamentary-SMD systems have proved to be the least desirable and the worst preventive institutional frameworks in the cases in question.

5.3.1.3 Dispersed Groups

Tables 5.7 and 5.9 show that in cases involving spatially dispersed ethnic groups, ethnic rebellion tends to be relatively mild, despite which political systems are in use. This empirical pattern is in accordance with $\text{Hypothesis}_{\text{null}}$ 3a and $\text{Hypothesis}_{\text{null}}$ 4a. These hypotheses are derived from the notion that dispersed groups are so essentially

peaceful that they will not fight severely against their regimes no matter which political systems their states adopt.

Another pattern can be found in Tables 5.7 and 5.9, however. This pattern gives credence to $\text{Hypothesis}_{\text{alternative}}$ 3a and $\text{Hypothesis}_{\text{alternative}}$ 4a, i.e. what works best for concentrated groups seem to work best for dispersed groups as well, controlling for the number of rival groups they face. Specifically, countries using presidential-PR systems appear to experience lowest or second lowest levels of rebellion in cases involving dispersed groups facing only one rival group. Parliamentary-PR and presidential-PR systems generally outperform parliamentary-SMD systems in cases involving dispersed groups facing multiple other groups. In these cases, no states use presidential-SMD systems, so the effect of this theoretically desirable system cannot be evaluated.

Which empirical pattern receives statistical significance? The test results of Tables 5.8 and 5.10 lead to a sweeping conclusion that institutions do not affect the conflict propensity of spatially dispersed groups. This statistical evidence is consistent with $\text{Hypothesis}_{\text{null}}$ 3a and $\text{Hypothesis}_{\text{null}}$ 4a.

These findings are important in two ways. First, my analysis confirms the need to control for the ethnic contexts when investigating the effects of political systems. If we ignore these crucial contextual factors, we will be very likely to obtain biased or even insignificant estimates about the effects of institutions. For example, if ethnic groups were not divided into two categories according to their spatial distributions, I might have mistakenly concluded that institutions do not matter at all. The no effects of institutions in cases involving dispersed groups might dilute the significant effects of institutions in cases involving concentrated groups, to the extent that the significant effects become insignificant. Second, although *groups* serve as the unit of analysis, my findings

Table 5.7: Predicted Levels of Rebellion
in Cases Involving Dispersed Groups Facing One Rival Group
(Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 9: PAR-PR Systems	0.15 (1.26)	0.02 (1.21)	-0.04 (1.29)
Type 10: PRE-PR Systems	0.11 (1.08)	0.08 (1.06)	0.06 (1.14)
Type 11: PAR-SMD Systems	0.21 (1.06)	0.32 (1.00)	0.14 (1.09)
Type 12: PRE-SMD Systems	0.28 (1.17)	0.19 (1.14)	0.13 (1.20)

Note: Types in gray areas represent potentially appropriate institutions for this specific context. Standard errors are in parentheses. ****p*<.01; ***p*<.05; **p*<.*10*; 2-tailed tests.

Table 5.8: Marginal Combined Effects of Political Institutions
in Cases Involving Dispersed Groups Facing One Rival Group

	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 10 vs. Type 9	-0.04	0.01	0.06	0.01	0.10	0.03
Type 10 vs. Type 11	-0.10	0.04	-0.24	0.27	-0.08	0.02
Type 10 vs. Type 12	-0.17	0.08	-0.11	0.03	-0.07	0.01

Note: d stands for the differences between Type 10 and the other types, and is calculated by subtracting the predicted rebellion levels of the other types, one by one, from that of Type 10. ****p*<.01; ***p*<.05; **p*<.*10*; 1-tailed tests.

provide implications for the institutional engineering of ethnically divided *societies*. Since different institutions do not make a difference in reducing spatially dispersed groups' conflict propensity, ethnically divided countries can design institutions based on only the needs of concentrated ethnic groups.

Table 5.9: Predicted Levels of Rebellion
in Cases Involving Dispersed Groups Facing Multiple Rival Groups
(Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 13: PAR-PR Systems	0.17 (1.10)	0.17 (1.11)	0.04 (1.13)
Type 14: PRE-PR Systems	-0.15 (1.31)	-0.15 (1.29)	-0.40 (1.18)
Type 15: PAR-SMD Systems	0.50 (1.07)	-0.23 (1.38)	0.37 (1.09)

Note: Types in gray areas represent potentially appropriate institutions for this specific context. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 5.10: Marginal Combined Effects of Political Institutions
in Cases Involving Dispersed Groups Facing Multiple Rival Groups

	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 13 vs. Type 14	0.32	0.09	0.32	0.09	0.44	0.23
Type 13 vs. Type 15	-0.33	0.15	0.40	0.08	-0.33	0.14

* Note: d is calculated by subtracting the predicted rebellion level of a theoretically undesirable system (i.e. Type 13) from that of a desirable one (i.e. Types 14 and 15). ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

5.3.1.4 Robustness Check 1

The dataset is essentially nested (with ethnic groups nested in countries), however. To avoid the inflation rate of rejecting a null hypothesis that is true, I test for robustness with respect to the presence of multiple random factors. Given that 18 out of 22 independent variables involve country-level factors (13 out of 18 are the primary variables of interest) and that there are only 70 countries, it can be expected that the estimates will not be very precise.

Table 5.11 presents the estimates of the hierarchical model using rebellion as the

Table 5.11: Hierarchical Linear Model: Rebellion, 1985-2003

	Alesina et al.		Annett	
Variable	b	SE	b	SE
Fixed Effects:				
Single Term				
PAR	-.10	.64	.05	.67
PR	-.22	.63	-.01	.65
Con	.92*	.56	.85	.55
Interactive Term				
PAR*PR	.29	.95	-.01	.98
PAR*Frac	.38	.79	.45	.81
PAR*Con	-.17	.87	-.02	.87
PR*Frac	-.35	.98	-.71	.84
PR*Con	-.64	.73	-.88	.75
Frac*Con	-1.17**	.56	-.20	.59
PAR*PR*Frac	-.25	1.48	.07	1.42
PAR*PR*Con	1.04	1.27	1.22	1.28
PAR*Frac*Con	1.58	1.09	.53	1.11
PR*Frac*Con	1.75	1.18	1.65	1.10
PAR*PR*Frac*Con	-2.84	1.83	-2.71	1.78
Control Variable				
Federal system	-.31	.32	-.21	.34
Enduring regime	.01*	.00	.01	.00
First election	.53	1.04	.04	1.11
Log GDP per capita	-.34***	.13	-.26*	.14
Change in GDP per capita	9.18*	5.61	9.49	5.91
Political differentials	.15	.10	.15	.10
Economic differentials	-.03	.08	-.05	.08
Cultural differentials	.08	.11	.11	.11
Constant	2.33*	1.23	1.51	1.32
Variance Components:				
Country-Level (τ_{00})	.38**	.21	.51**	.19
Individual-Level (σ^2)	1.18**	.08	1.15**	.08

Note: PAR, PR, Con, and Frac stand for parliamentary systems, proportional representation systems, group concentration, and ethnic fractionalization, respectively. Table entries are REML estimates. ***p<.01; **p<.05; *p<.10; 2-tailed tests.

Table 5.12: Predicted Levels of Rebellion
in Cases Involving Concentrated Groups Facing One Rival Group
(Hierarchical Linear Model)

Type	Alesina et al.	Annett
Type 1: PAR-PR Systems	1.45 (1.23)	1.41 (1.32)
Type 2: PRE-PR Systems	0.39 (1.07)	0.18 (1.18)
Type 3: PAR-SMD Systems	0.99 (1.14)	1.10 (1.22)
Type 4: PRE-SMD Systems	1.25 (1.10)	1.07 (1.23)

Note: Types in gray areas represent appropriate institutions for this specific context. Standard errors are in parentheses. ****p*<.01; ***p*<.05; **p*<.*10*; 2-tailed tests.

Table 5.13: Marginal Combined Effects of Political Institutions
in Cases Involving Concentrated Groups Facing One Rival Group

	Alesina et al.		Annett	
Marginal Effects	d	χ^2	d	χ^2
Type 2 vs. Type 1	-1.06	3.31**	-1.23	4.07***
Type 2 vs. Type 3	-0.60	0.82	-0.92	1.82*
Type 2 vs. Type 4	-0.86	3.69**	-0.89	3.04**

Note: d stands for the differences between Type 2 and the other types, and is calculated by subtracting the predicted rebellion levels of the other types, one by one, from that of Type 2. ****p*<.01; ***p*<.05; **p*<.*10*; 1-tailed tests.

dependent variable. The coefficients obtained from using Fearon's fractionalization index to perform the model are not shown. Because there remains no meaningful variation in the state-level model when Fearon's variable is used, there is no need to specify additional random factor when such a variable is included in analysis.

Table 5.12 presents the predicted rebellion levels of political systems in cases involving concentrated groups facing only one rival group. As Table 5.12 shows,

presidential-PR systems still outperform all the other systems in reducing the intensity of ethnic conflict after the nested data structure is taken into consideration.

The test results of Table 5.13 confirm mostly the statistical significance of this empirical pattern. The finding verifies the robustness of my conclusion that in cases involving a concentrated minority group facing only one rival group, ceteris paribus, presidential-PR systems better prevent the escalation of ethnic conflict than *most* of the other institutional configurations. Using Annett's index of ethnic fractionalization reach an even stronger conclusion that presidential-PR systems outperform *all* the other systems in the cases in question, if one were willing to accept a result significant at a 90% confidence level in 1-tailed tests.

5.3.1.5 Robustness Check 2

Table 5.14 presents the predicted rebellion levels of political systems in cases involving concentrated groups facing multiple rival groups. Rebellion still tends to be most severe in parliamentary-SMD systems, after the nested data structure is taken into consideration.

The test results of Table 5.15 again confirm the robustness of what I concluded: In accordance with my theory, Parliamentary-PR and presidential-SMD systems uniformly outperform parliamentary-SMD systems in cases involving concentrated groups facing multiple ethnic others. The unexpected, significant difference between presidential-PR systems and parliamentary-SMD systems is not shown on Table 5.15. This unexpected finding suggests that heterogeneous states using presidential-PR systems can prevent more severe rebellion from happening similarly well as the two desirable systems. States interested in using presidential-PR systems should design their

Table 5.14: Predicted Levels of Rebellion
in Cases Involving Concentrated Groups Facing Multiple Rival Groups
(Hierarchical Linear Model)

Type	Alesina et al.	Annett
Type 5: PAR-PR Systems	0.55 (1.18)	0.49 (1.26)
Type 6: PRE-PR Systems	0.61 (1.04)	0.92 (1.11)
Type 7: PAR-SMD Systems	1.77* (0.93)	1.88* (1.01)
Type 8: PRE-SMD Systems	0.08 (0.93)	0.87 (1.00)

Note: Types in gray areas represent appropriate institutions for this specific context. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 5.15: Marginal Combined Effects of Political Institutions
in Cases Involving Concentrated Groups Facing Multiple Rival Groups

	Alesina et al.		Annett	
Marginal Effects	d	χ^2	d	χ^2
Type 5 vs. Type 6	-0.06	0.01	-0.43	0.36
Type 5 vs. Type 7	-1.22	2.82**	-1.39	3.17**
Type 8 vs. Type 6	-0.53	0.90	-0.05	0.01
Type 8 vs. Type 7	-1.69	7.25***	-1.01	2.49*

Note: d is calculated by subtracting the predicted rebellion level of a theoretically undesirable system (i.e. Types 6 and 7) from that of a desirable one (i.e. Types 5 and 8). ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

presidential electoral systems carefully in order to promote presidents' incentives to take care of the interests of all the ethnic groups.

5.3.1.6 Robustness Check 3

Table 5.16 and Table 5.18 show that taking into consideration the presence of the

state-level random factor does not change the empirical patterns about the effects of political institutions, either. There are two patterns. First, in cases involving dispersed ethnic groups, ethnic rebellion tends to be less severe across-the-board. Second, presidential-PR systems better reduce the levels of dispersed groups' rebellion if these groups face one rival group. In cases involving dispersed groups facing multiple ethnic others, ethnic rebellion tend to be more severe in parliamentary-SMD systems.

These differences between the effects of political systems have been proved to be insignificant, however, as the test results of Table 5.17 and Table 5.19 show. I can therefore reach to the same conclusion: Ethnic contexts must be part of any studies which investigate the effects of institutions on ethnic conflict. Furthermore, since institutions do not affect dispersed groups' conflict tendency, ethnically divided countries can design institutions based on only the needs of concentrated ethnic groups.

In sum, the test results of hierarchical models show that the conclusions I made about the effects of political systems remain the same, confirming the robustness of my findings. In the following section, I discuss the statistical evidence about a similar but weaker link between these institutions and nonviolent ethnic conflict, i.e. anti-regime protest.

Table 5.16: Predicted Levels of Rebellion
in Cases Involving Dispersed Groups Facing One Rival Group
(Hierarchical Linear Model)

Type	Alesina et al.	Annett
Type 9: PAR-PR Systems	0.30 (1.33)	0.25 (1.42)
Type 10: PRE-PR Systems	0.11 (1.14)	0.21 (1.25)
Type 11: PAR-SMD Systems	0.23 (1.13)	0.27 (1.22)
Type 12: PRE-SMD Systems	0.33 (1.23)	0.22 (1.32)

Note: Types in gray areas represent potentially appropriate institutions for this specific context. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 5.17: Marginal Combined Effects of Political Institutions
in Cases Involving Dispersed Groups Facing One Rival Group

	Alesina et al.		Annett	
Marginal Effects	d	χ^2	d	χ^2
Type 10 vs. Type 9	-0.19	0.09	-0.04	0.00
Type 10 vs. Type 11	-0.12	0.06	-0.06	0.01
Type 10 vs. Type 12	-0.22	0.12	-0.01	0.00

Note: d stands for the differences between Type 10 and the other types, and is calculated by subtracting the predicted rebellion levels of the other types, one by one, from that of Type 10. ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

Table 5.18: Predicted Levels of Rebellion
in Cases Involving Dispersed Groups Facing Multiple Rival Groups
(Hierarchical Linear Model)

Type	Alesina et al.	Annett
Type 13: PAR-PR Systems	0.08 (1.17)	0.06 (1.25)
Type 14: PRE-PR Systems	-0.25 (1.35)	-0.50 (1.26)
Type 15: PAR-SMD Systems	0.62 (1.11)	0.72 (1.17)

Note: Types in gray areas represent potentially appropriate institutions for this specific context. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 5.19: Marginal Combined Effects of Political Institutions
in Cases Involving Dispersed Groups Facing Multiple Rival Groups

	Alesina et al.		Annett	
Marginal Effects	d	χ^2	d	χ^2
Type 13 vs. Type 14	0.33	0.10	0.56	0.34
Type 13 vs. Type 15	-0.54	0.35	-0.66	0.51

Note: d is calculated by subtracting the predicted rebellion level of a theoretically undesirable system (i.e. Type 13) from that of a desirable one (i.e. Types 14 and 15). ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

Table 5.20 displays the coefficients of pooled, time-series cross-sectional analysis of protest with panel-corrected standard errors, using ethnic protest at the dependent variable. The regression of the residuals on the lagged residuals indicates that my empirical results are not free of autocorrelation, making the estimates of Table 5.20 suspicious. I therefore substitute a between-effects regression for time-series cross-sectional analysis. The estimates are shown on Table 5.21.

Table 5.20: Pooled, Time-Series Cross-Sectional Analyses of Protest, 1985-2003

	Alesina et al.		Fearon		Annett	
Variable	b	SE	b	SE	b	SE
Primary Variable						
PAR	-.06	.11	.05	.10	-.06	.11
PR	-.25**	.10	-.24**	.11	-.22**	.10
Con	.12	.09	.12	.09	.10	.10
PAR*PR	.21	.13	.10	.14	.18	.16
PAR*Frac	.45***	.16	.58**	.28	.45***	.61
PAR*Con	-.15	.18	-.14	.16	-.13	.18
PR*Frac	.14	.14	.10	.15	-.14	.26
PR*Con	.08	.14	.07	.14	.06	.14
Frac*Con	-.28*	.16	-.24	.16	-.13	.15
PAR*PR*Frac	-.60*	.31	-.69*	.39	-.32	.40
PAR*PR*Con	.33	.27	.29	.25	.34	.27
PAR*Frac*Con	.07	.20	-.22	.30	-.07	.19
PR*Frac*Con	.23	.22	.25	.21	.35	.25
PAR*PR*Frac*Con	-.40	.45	-.19	.43	-.51	.43
Control Variable						
Lagged Protest	.62***	.06	.62***	.06	.62***	.06
Federal system	-.01	.10	.06	.08	-.02	.09
Enduring regime	.00**	.00	.00	.00	.00**	.00
First election	-.01	.14	-.02	.14	-.02	.13
Log GDP per capita	-.03	.02	-.02	.03	-.02	.02
Change in GDP per capita	-.99**	.49	-.99**	.49	-.95**	.48
Political differentials	.02	.02	.02	.02	.02	.02
Economic differentials	.02	.02	.01	.02	.02	.02
Cultural differentials	.09***	.03	.10***	.03	.10***	.03
Constant	.47*	.26	.39	.27	.43*	.26
R-squared	.47		.47		.47	
N of Observations	1935		1935		1935	
P (Lagged residuals)	.00***		.00***		.00***	

Note: PAR, PR, Con, and Frac stand for parliamentary systems, proportional representation systems, group concentration, and fractionalization, respectively. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 5.21: Between-Effects Model: Protest, 1985-2003

	Alesina et al.		Fearon		Annett	
Variable	b	SE	b	SE	b	SE
Single Term						
PAR	-.02	.50	.20	.48	-.05	.50
PR	-.47	.50	-.44	.50	-.39	.51
Con	.41	.46	.38	.46	.38	.46
Interactive Term						
PAR*PR	.17	.75	-.00	.72	.13	.75
PAR*Frac	1.04*	.60	1.42	1.07	1.08*	.61
PAR*Con	-.66	.70	-.48	.62	-.64	.71
PR*Frac	.23	.79	.13	.80	-.42	.67
PR*Con	-.01	.60	.01	.60	-.07	.62
Frac*Con	-.39	.41	-.34	.41	-.36	.40
PAR*PR*Frac	-1.30	1.17	-1.78	1.50	-.74	1.10
PAR*PR*Con	1.49	1.03	1.13	.96	1.52	1.05
PAR*Frac*Con	-.15	.86	-1.15	1.21	-.18	.86
PR*Frac*Con	.82	.94	.86	.95	1.27	.86
PAR*PR*Frac*Con	-.73	1.48	.58	1.76	-1.10	1.43
Control Variable						
Federal system	.14	.23	.27	.22	.09	.23
Enduring regime	.00	.00	.00	.00	.00	.00
First election	-.62	.73	-.61	.74	-.60	.72
Log GDP per capita	-.02	.10	-.03	.10	-.03	.10
Change in GDP per capita	-1.08	4.13	.03	4.07	-1.00	4.15
Political differentials	.09	.08	.11	.08	.08	.08
Economic differentials	.03	.07	-.01	.06	.02	.07
Cultural differentials	.13	.09	.13	.09	.14	.09
Constant	.96	.94	1.05	.97	1.07	.97
R-squared: Between	.21		.19		.20	
n. of Groups	171		171		171	
White, χ^2	138.02 (d.f.: 147)		144.67 (d.f.: 144)		146.40 (d.f.: 148)	

Note: PAR, PR, Con, and Frac stand for parliamentary systems, proportional representation systems, group concentration, and ethnic fractionalization, respectively. White: White test for heteroskedasticity. ***p<.01; **p<.05; *p<.10; 2-tailed tests.

5.3.2 The Impact of Political Systems on Protest

5.3.2.1 Concentrated Groups Facing One Rival Group

Table 5.22 presents the predicted levels of protest in cases involving concentrated groups facing only one rival group. Presidential-PR systems outperform almost all the other systems. The test results of Table 5.23, however, show that presidential-PR systems significantly outperform only parliamentary-PR systems. Specifically, concentrated groups who face only one opposition group and whose countries change their institutions form parliamentary-PR to presidential-PR systems will be related to 38%-42% lower degrees of protest, on average. The facts that presidential-PR systems outperform only one institutional configuration, and that changing from the undesirable parliamentary-PR systems to the desirable presidential-PR systems results in a relatively low reduction rate of protest intensity are in accordance with Hypothesis 1b. Institutions play similar but weaker roles in managing protest than in managing rebellion.[119]

It should be noted that presidential-PR systems also better prevent more intense protest than presidential-SMD systems if one were willing to accept a result significant at a 90% confidence level in 1-tailed tests. Furthermore, contrary to my expectation, parliamentary-SMD systems perform almost equally well as presidential-PR systems in preventing intense protest. After controlling for the nested structure of my dataset, this unexpected finding exists only when the Fearon's index of ethnic fractionalization is used, however.

[119] Please refer to Chapter 3 for the hypotheses related to protest.

Table 5.22: Predicted Levels of Protest
in Cases Involving Concentrated Groups Facing One Rival Group
(Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 1: PAR-PR Systems	2.36** (0.93)	2.24** (0.95)	2.34** (0.96)
Type 2: PRE-PR Systems	1.38* (0.81)	1.40* (0.84)	1.39 (0.85)
Type 3: PAR-SMD Systems	1.18 (0.88)	1.54* (0.81)	1.15 (0.90)
Type 4: PRE-SMD Systems	1.86** (0.83)	1.83** (0.86)	1.85** (0.88)

Note: Types in gray areas represent appropriate institutions for this specific context. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.10; 2-tailed tests.

Table 5.23: Marginal Combined Effects of Political Institutions
in Cases Involving Concentrated Groups Facing One Rival Group

	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 2 vs. Type 1	-0.98	4.62**	-0.84	3.53**	-0.95	4.05**
Type 2 vs. Type 3	0.20	0.14	-0.14	0.11	0.24	0.19
Type 2 vs. Type 4	-0.48	1.93*	-0.43	1.49	-0.46	1.47

Note: d stands for the differences between Type 2 and the other types, and is calculated by subtracting the predicted rebellion levels of the other types, one by one, from that of Type 2. ***p<.01; **p<.05; *p<.10; 1-tailed tests.

5.3.2.2 Concentrated Groups Facing Multiple Rival Groups

Table 5.24 shows that the differences between political systems in terms of their effects seem to be quite small in cases involving concentrated groups facing multiple ethnic others. The test results of Table 5.25 confirm this observation: institutions indeed have no impact on protest intensity in such cases. If one were willing to accept a 90% confidence level in 1-tailed tests, then as expected, presidential-SMD systems generally better prevent intense protest than presidential-PR systems. Specifically, concentrated groups who face multiple opposition groups and whose countries change their institutions form presidential-PR to presidential-SMD systems will be associated with 90%-94% lower levels of protest, on average. Many scholars would require more significant estimates to acknowledge the impact of institutions, however. Why institutions cannot mitigate the severity of protest in cases involving concentrated groups facing multiple rival groups?

Some factors largely offset the differences between the effects of political systems in such cases, to the extent that the differences evaporate. As mentioned in Chapter 3, these factors include the common protection of individuals' right in democracies to legally and nonviolently protest, and the positive effect of nonviolent conflict on the functioning and survival of a society. These factors also explain why ethnic protest behavior happens much more frequently than ethnic rebellion in ethnically divided societies, as Table 4.1 has indicated.

Table 5.24: Predicted Levels of Protest
in Cases Involving Concentrated Groups Facing Multiple Rival Groups
(Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 5: PAR-PR Systems	1.88** (0.90)	1.95** (0.95)	1.90** (0.93)
Type 6: PRE-PR Systems	2.03** (0.79)	2.04** (0.80)	1.87** (0.80)
Type 7: PAR-SMD Systems	1.68** (0.68)	1.47** (0.70)	1.69** (0.71)
Type 8: PRE-SMD Systems	1.46** (0.70)	1.48** (0.71)	1.49** (0.72)

Note: Types in gray areas represent appropriate institutions for this specific context. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 5.25: Marginal Combined Effects of Political Institutions
in Cases Involving Concentrated Groups Facing Multiple Rival Groups

	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 5 vs. Type 6	-0.15	0.08	-0.09	0.02	0.03	0.00
Type 5 vs. Type 7	0.20	0.15	0.48	0.61	0.31	0.15
Type 8 vs. Type 6	-0.57	1.90*	-0.56	1.83*	-0.38	1.02
Type 8 vs. Type 7	-0.22	0.22	0.01	0.00	-0.20	0.21

Note: d is calculated by subtracting the predicted rebellion level of a theoretically undesirable system (i.e. Types 6 and 7) from that of a desirable one (i.e. Types 5 and 8). ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

5.3.2.3 Dispersed Groups

Table 5.26 and Table 5.28 show that political systems which represent theoretically appropriate institutions in specific contexts are indeed empirically associated with lower levels of protest. However, the 1-tailed test results based on the 95% confidence level lead to the conclusion that institutions do not influence the magnitude of dispersed

Table 5.26: Predicted Levels of Protest
in Cases Involving Dispersed Groups Facing One Rival Group
(Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 9: PAR-PR Systems	1.13 (1.02)	1.20 (1.02)	1.16 (1.04)
Type 10: PRE-PR Systems	0.98 (0.87)	1.00 (0.90)	1.08 (0.92)
Type 11: PAR-SMD Systems	1.43* (0.86)	1.64* (0.85)	1.42 (0.88)
Type 12: PRE-SMD Systems	1.45 (0.94)	1.45 (0.97)	1.47 (0.97)

Note: Types in gray areas represent potentially appropriate institutions for this specific context. Standard errors are in parentheses. ****p*<.01; ***p*<.05; **p*<.*10*; 2-tailed tests.

Table 5.27: Marginal Combined Effects of Political Institutions
in Cases Involving Dispersed Groups Facing One Rival Group

	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 10 vs. Type 9	-0.15	0.09	-0.20	0.15	-0.08	0.02
Type 10 vs. Type 11	-0.45	1.20	-0.64	2.71*	-0.34	0.63
Type 10 vs. Type 12	-0.47	0.89	-0.45	0.78	-0.39	0.59

Note: d stands for the differences between Type 10 and the other types, and is calculated by subtracting the predicted rebellion levels of the other types, one by one, from that of Type 10. ****p*<.01; ***p*<.05; **p*<.*10*; 1-tailed tests.

groups' protest activities in states with two major ethnic groups. This finding of Table 5.27 confirms again the notion that institutions are simply irrelevant for essentially more peaceful dispersed groups and, hence, gives credence to $\text{Hypothesis}_{\text{null}}$ 3b.

Table 5.29 provides contradictory evidence against the notion. In cases involving dispersed groups facing multiple competing groups, parliamentary-SMD systems serve as the least desirable institutional arrangements. Although the estimates have not been

Table 5.28: Predicted Levels of Protest
in Cases Involving Dispersed Groups Facing Multiple Rival Groups
(Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 13: PAR-PR Systems	1.11 (0.89)	0.96 (0.94)	1.09 (0.92)
Type 14: PRE-PR Systems	1.21 (1.06)	1.13 (1.09)	0.67 (0.95)
Type 15: PAR-SMD Systems	2.47*** (0.86)	3.06** (1.17)	2.50*** (0.88)

Note: Types in gray areas represent potentially appropriate institutions for this specific context. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 5.29: Marginal Combined Effects of Political Institutions
in Cases Involving Dispersed Groups Facing Multiple Rival Groups

	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 13 vs. Type 14	-0.10	0.01	-0.17	0.04	0.42	0.32
Type 13 vs. Type 15	-1.36	3.86**	-2.10	3.06	-1.41	4.11**

Note: d is calculated by subtracting the predicted rebellion level of a theoretically undesirable system (i.e. Type 13) from that of a desirable one (i.e. Types 14 and 15). ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

shown on the table, the difference between presidential-PR systems (Type 14) and parliamentary-SMD systems (Type 15) generally reaches statistical significance at a 95% confidence level. These findings provide supportive evidence for $\text{Hypotheses}_{\text{alternative}}$ 4b, which acknowledges the impact of institutions on dispersed groups' conflict propensity when such groups face multiple ethnic others.

In sum, there are two general conclusions about the link between institutions and ethnic protest. First, in accordance with my expectation, in cases involving concentrated groups, institutions have similar but usually weaker or even no effects on nonviolent

protest. Second, in cases involving dispersed groups, the findings are mixed. On the one hand, when such groups face one rival group, political systems do not affect their conflict propensity. On the other hand, when such groups face multiple rival groups, institutions do have an impact. What works “theoretically” best for concentrated groups facing multiple groups works “practically” best for dispersed groups facing a similar number of ethnic others. These findings, though mixed, further highlight the importance of institutions because political systems have effects in some cases involving dispersed groups who are generally believed to be less combative.

I have performed a hierarchical model and found that including additional random factor into analysis does not change my conclusions about the relations between political systems and ethnic protest. I will not discuss these results of robustness checks in detail. Interested readers can refer to Tables 5.30-5.38 in the end of this chapter.

Up to this point, the estimates of both between-effects and hierarchical models have provided strong support for my hypotheses. For example, given a certain context, political systems that maximize the sum of probabilities for ethnic power sharing have been proved to provide the best framework for addressing ethnic rebellion and protest. Minorities who presumably have motivation and capability to fight for control of the land they reside have become less combative in states using such preventive institutional arrangements. Furthermore, while different political systems have better prevented the escalation of ethnic conflict in different ethnic contexts, same political systems have been required to manage both violent and nonviolent conflict in a given divided society. This latter finding, which is consistent with my theory, largely reduces the complication of institutional engineering in a state.

The hierarchical models have been used as a way to test the robustness of these

findings with respect to the presence of multiple random factors. There are other robustness checks that I promised to do. These checks constitute the topic of this chapter's concluding section.

5.4 Other Robustness Checks

5.4.1 The Endogeneity between Political Systems and Conflict Levels

The causal arrow of my theory runs from political systems to ethnic conflict intensity. Some may claim that the causal arrow also works in reverse. More peaceful ethnic relations may mean higher levels of inter-group trust, and foster the use of political systems which better take care of the interests of every group. Conversely, countries suffering from severe ethnic conflict may find difficulties in adopting such systems. The long-lasting inter-group antagonism and distrust may result in ethnic groups' unwillingness to share power with rival ethnic others.

These arguments have several flaws. Theoretically, countries with more serious ethnic problems may be more urgent in finding appropriate and mutually acceptable institutional solutions for ethnic groups. Conversely, countries with more harmonious ethnic relations may be too homogenous or simply too peaceful to worry about which political systems better manage ethnic conflict. Empirically, I did not find any supportive evidence for the competing notion that peaceful ethnic relations foster power-sharing systems, either. I have performed simple logit analysis, treating conflict levels as the determinant of government structures and electoral systems, and found that conflict levels generally do not significantly affect the choice of political systems. Because of these reasons, the problem of endogeneity is at best very minor in my analysis.

5.4.2 The Breakdown of Government Structures

In assessing the effects of government structures, I evaluate only the difference between parliamentary and non-parliamentary systems (which has been called presidential systems in this dissertation for simplicity) for two reasons. First, my theory predicts similar impact of presidential and semi-presidential systems, so I combine these two government structures into one category, i.e. presidential systems, in my analysis. Second, treating government structures as a dummy variable helps save many degrees of freedom in my statistical model. However, it is problematic not to test empirically whether presidential systems have similar impact as semi-presidential systems simply because of the concern of degrees of freedom and because of the presumably equal effects of the two systems.

I have used a between-effects model to test whether dividing government structures into three types, i.e. presidential, semi-presidential, and parliamentary systems, changes my conclusion. The empirical patterns are generally in accordance with my expectation. The test results show that there is no significant difference between presidential and semi-presidential systems. Put differently, states choosing their government structures between these two systems will not find any significant change in the degrees of ethnic conflict.

In cases involving concentrated ethnic groups facing multiple ethnic others, parliamentary-SMD systems still serve as the least desirable systems because all the other systems significantly outperform these systems. In cases involving concentrated groups facing only one rival group, as expected, presidential-PR systems outperform parliamentary-PR and presidential-SMD systems. The estimated signs for the differences between semi-presidential-PR systems and the two undesirable systems just mentioned

are consistent with Hypothesis 1a, but their 90% confidence intervals in 2-tailed tests include the possibility of no effect. Furthermore, the differences between presidential-PR and semi-presidential-PR systems on the one hand and semi-presidential-SMD systems on the other hand also have expected signs, but are statistically insignificant.

These test results generally confirm the appropriateness of treating government structures as a dummy variable because of three reasons. First, presidential and semi-presidential systems have generally been associated with a similar degree of ethnic conflict. Second, in cases involving concentrated groups facing multiple ethnic others, I reach the same conclusion about the effects of political systems regardless of how I divide government structures. Having only two categories in this variable is thus preferable because doing so saves many degrees of freedom.

Third, in cases involving concentrated groups facing one rival group, all the estimated signs of the differences between political systems are in accordance with Hypothesis 1a, but only some comparisons receive significant estimates. Even so, it is still too early to argue against the advantages of semi-presidential-PR systems in such cases. As mentioned in Chapter 2, models with interactive terms will be more difficult to obtain precise estimates. Given this fact, and given that the number of ethnic groups in my dataset is rather small,[120] and that the number of independent variables in my model is quite large,[121] it is not surprising to get the insignificant estimates in question. Regardless, the findings in cases involving concentrated groups facing one rival group do not essentially challenge Hypothesis 1a— in such cases, ceteris paribus, presidential-PR systems provide the best preventive framework for ethnic conflict—but with the

[120] The total N of observations in the analysis of this chapter is 172.
[121] I have 30 independent variables when government structures have 3 categories.

qualification that by presidential-PR systems, I mean only “presidential”-PR systems in such cases.

5.4.3 Ambiguous Government Structures

There are some countries whose government structures have been classified as one type by some scholars, but another type by other scholars. These countries in my dataset include: Switzerland, Taiwan during 1992-1996, and Yugoslavia during 2001-2002.[122] In my dataset, I have coded Yugoslavia during the period as a parliamentary system and Switzerland and Taiwan during the particular years as presidential systems. However, some scholars may regard the Federal Republic of Yugoslavia during the period as a presidential system given that it had a popularly and directly elected president, although the then president, Vojislav Koštunica, held only little formal power. Using unique mixed systems, Switzerland and Israel have provided very difficult cases to classify as well. Furthermore, some scholars have also considered Taiwan during 1992-1996 a parliamentary system.

I have done four sensitivity tests by categorizing Yugoslavia during 2001-2002 as a presidential system, by excluding Israel and Switzerland from analysis, and by classifying Taiwan during 1992-1996 as a parliamentary system in the analysis of a between-effects model. The results show that how to code the government structures of and whether including in analysis of these four states does not influence my conclusions.

5.4.4 The Effects of Homogenous States

There are some considerably homogenous states in my sample, raising the concern

[122] Please refer to Chapter 4 for more description about the government structures of these states.

that the presence of peace between ethnic groups in these cases does not result from the preventive effects of institutions on ethnic conflict. Instead, harmonious ethnic relations may be due to the overwhelming dominance of advantageous groups in terms of populations. Furthermore, in homogenous states, ethnic groups may be too small to have significant political relevance attractive to parties. Put differently, parties may not represent ethnic groups in such states. If so, then government structures and electoral systems do not matter for such groups as I have assumed. These concerns impel me to test whether my findings still hold when excluding homogenous societies from analysis.[123]

I have relied on the scores of ethnic fractionalization to determine whether a state is homogenous or not. I have used two values as thresholds, i.e. 10% and 20%. I excluded from analysis any state whose fractionalization score is below these two thresholds in turn, such as Albania, Bangladesh, Italy, Japan, South Korea, and several others. Test results again generally confirm the robustness of my conclusions.

I will do another robustness check in Chapter 7 to test whether treating ethnic conflict as an interval scale variable and ignoring my data's probability mass at a single value of 0 have biased my findings.

[123] Controlling for group population is not a good way to tackle these concerns. For one thing, minority groups do not need large population to fight against their states (Fearon and Laitin 2003), so we should not consider that variable a determinant of ethnic conflict. For another, the fact that harmonious ethnic relations may be due to the overwhelming dominance of advantageous groups in terms of populations suggests that a better control variable should be the population proportion of *dominant* groups. I do not have such data, so I rely on the aforementioned sensitivity test. Furthermore, the concern that in homogenous societies, minority groups may be too small to have significant political relevance attractive to parties is not about the "exact" proportion of minority groups per se. Instead, I worry about the validity of my assumption that parties represent ethnic groups. An appropriate robustness check will test whether my findings still hold when excluding homogenous societies from analysis. In such societies, minority groups tend to be so small that political parties or coalitions form along other rather than ethnic lines. Last but not least, controlling for group population does not change any conclusions I have made. The variable itself generated an insignificant coefficient as well.

Table 5.30: Hierarchical Linear Model: Protest, 1985-2003

	Alesina et al.		Fearon		Annett	
Variable	b	SE	b	SE	b	SE
Fixed Effects:						
Single Term						
PAR	-.05	.53	.16	.50	-.06	.54
PR	-.49	.51	-.47	.51	-.41	.52
Con	.51	.43	.50	.43	.50	.43
Interactive Term						
PAR*PR	.35	.78	.17	.74	.29	.79
PAR*Frac	.98	.66	1.34	1.05	1.03	.66
PAR*Con	-.50	.68	-.78	.59	-.50	.69
PR*Frac	-.01	.78	-.12	.78	-.45	.66
PR*Con	.01	.57	.01	.57	-.05	.59
Frac*Con	-.68	.49	-.65	.50	-.56	.49
PAR*PR*Frac	-1.26	1.19	-1.69	1.48	-.88	1.14
PAR*PR*Con	1.10	.99	1.23	.90	1.15	1.00
PAR*Frac*Con	-.29	.88	-.61	1.15	-.42	.89
PR*Frac*Con	1.26	.94	1.33	.95	1.38	.87
PAR*PR*Frac*Con	-.54	1.44	.05	1.66	-.62	1.41
Control Variable						
Federal system	.23	.28	.31	.26	.18	.28
Enduring regime	.00	.00	.00	.00	.00	.00
First election	-.40	.94	-.38	.95	-.44	.93
Log GDP per capita	-.00	.11	.00	.12	-.00	.12
Change in GDP per capita	.33	4.82	.57	4.80	.20	4.86
Political differentials	.03	.08	.04	.08	.03	.08
Economic differentials	.02	.06	-.01	.06	.02	.06
Cultural differentials	.16*	.08	.17**	.08	.16**	.08
Constant	.81	1.03	.76	1.07	.84	1.07
Variance Components:						
Country-Level (τ_{00})	.46**	.11	.47**	.11	.47**	.11
Individual-Level (σ^2)	.89**	.06	.89**	.06	.89**	.06

Note: Table entries are REML estimates. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 5.31: Predicted Levels of Protest
in Cases Involving Concentrated Groups Facing One Rival Group
(Hierarchical Linear Model)

Type	Alesina et al.	Fearon	Annett
Type 1: PAR-PR Systems	2.40** (1.05)	2.29** (1.07)	2.38** (1.08)
Type 2: PRE-PR Systems	1.50* (0.91)	1.50 (0.95)	1.50 (0.96)
Type 3: PAR-SMD Systems	1.43 (0.97)	1.35 (0.95)	1.41 (1.00)
Type 4: PRE-SMD Systems	1.98** (0.95)	1.97** (0.98)	1.97* (1.01)

Note: Types in gray areas represent appropriate institutions for this specific context. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.10; 2-tailed tests.

Table 5.32: Marginal Combined Effects of Political Institutions
in Cases Involving Concentrated Groups Facing One Rival Group

	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	χ^2	d	χ^2
Type 2 vs. Type 1	-0.90	3.58**	-0.79	2.88**	-0.88	3.15**
Type 2 vs. Type 3	0.07	0.02	0.15	0.11	0.09	0.03
Type 2 vs. Type 4	-0.48	1.63	-0.47	1.45	-0.47	1.25

Note: d stands for the differences between Type 2 and the other types, and is calculated by subtracting the predicted rebellion levels of the other types, one by one, from that of Type 2. ***p<.01; **p<.05; *p<.10; 1-tailed tests.

Table 5.33: Predicted Levels of Protest
in Cases Involving Concentrated Groups Facing Multiple Rival Groups
(Hierarchical Linear Model)

Type	Alesina et al.	Fearon	Annett
Type 5: PAR-PR Systems	1.85* (1.00)	1.94* (1.06)	1.86* (1.03)
Type 6: PRE-PR Systems	2.06** (0.89)	2.07** (0.91)	1.88** (0.91)
Type 7: PAR-SMD Systems	1.44* (0.81)	1.43* (0.81)	1.46* (0.84)
Type 8: PRE-SMD Systems	1.30* (0.80)	1.31 (0.82)	1.41* (0.82)

Note: Types in gray areas represent appropriate institutions for this specific context. Standard errors are in parentheses. ****p*<.01; ***p*<.05; **p*<.*10*; 2-tailed tests.

Table 5.34: Marginal Combined Effects of Political Institutions
in Cases Involving Concentrated Groups Facing Multiple Rival Groups

	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	χ^2	d	χ^2
Type 5 vs. Type 6	-0.21	0.12	-0.13	0.04	-0.02	0.00
Type 5 vs. Type 7	0.41	0.42	0.51	0.46	0.40	0.40
Type 8 vs. Type 6	-0.76	2..42*	-0.76	2.37*	-0.47	1.11
Type 8 vs. Type 7	-0.14	0.07	-0.12	0.04	-0.05	0.01

Note: d is calculated by subtracting the predicted rebellion level of a theoretically undesirable system (i.e. Types 6 and 7) from that of a desirable one (i.e. Types 5 and 8). ****p*<.01; ***p*<.05; **p*<.*10*; 1-tailed tests.

Table 5.35: Predicted Levels of Protest
in Cases Involving Dispersed Groups Facing One Rival Group
(Hierarchical Linear Model)

Type	Alesina et al.	Fearon	Annett
Type 9: PAR-PR Systems	1.28 (1.12)	1.33 (1.14)	1.29 (1.15)
Type 10: PRE-PR Systems	0.98 (0.97)	0.99 (1.00)	1.06 (1.02)
Type 11: PAR-SMD Systems	1.42 (0.96)	1.63* (0.96)	1.41 (1.00)
Type 12: PRE-SMD Systems	1.47 (1.03)	1.47 (1.07)	1.47 (1.07)

Note: Types in gray areas represent potentially appropriate institutions for this specific context. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 5.36: Marginal Combined Effects of Political Institutions
in Cases Involving Dispersed Groups Facing One Rival Group

	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	χ^2	d	χ^2
Type 10 vs. Type 9	-0.30	0.34	-0.34	0.43	-0.23	0.18
Type 10 vs. Type 11	-0.44	0.99	-0.64	2.34*	-0.35	0.57
Type 10 vs. Type 12	-0.49	0.93	-0.14	0.85	-0.41	0.61

Note: d stands for the differences between Type 10 and the other types, and is calculated by subtracting the predicted rebellion levels of the other types, one by one, from that of Type 10. ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

Table 5.37: Predicted Levels of Protest
in Cases Involving Dispersed Groups Facing Multiple Rival Groups
(Hierarchical Linear Model)

Type	Alesina et al.	Fearon	Annett
Type 13: PAR-PR Systems	0.99 (0.99)	0.85 (1.05)	0.99 (1.02)
Type 14: PRE-PR Systems	0.96 (1.11)	0.87 (1.14)	0.62 (1.02)
Type 15: PAR-SMD Systems	2.40*** (0.92)	2.97 (1.18)	2.43 (0.95)

Note: Types in gray areas represent potentially appropriate institutions for this specific context. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 5.38: Marginal Combined Effects of Political Institutions
in Cases Involving Dispersed Groups Facing Multiple Rival Groups

	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	χ^2	d	χ^2
Type 13 vs. Type 14	0.03	0.00	-0.02	0.00	0.37	0.23
Type 13 vs. Type 15	-1.41	3.64**	-2.12	3.16**	-1.44	3.76**

Note: d is calculated by subtracting the predicted rebellion level of a theoretically undesirable system (i.e. Type 13) from that of a desirable one (i.e. Types 14 and 15). ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Chapter 6: Ethnic Diversity, Ethnic Spatial Distributions, and Ethnic Conflict—A Statistical Investigation

This chapter discusses whether my theories about the effects of ethnic diversity and ethnic distributions have received empirical and statistical evidence. Because this chapter deals with this other side of my interactive models which I have performed and whose coefficients and standard errors I have presented in Chapter 5, I do not re-produce these estimates. Instead, only the predicted conflict levels in specific contexts and the marginal effects of the two contextual factors are presented. Furthermore, when discussing the sensitivity-test results of hierarchical models, only the marginal effects are shown.

Three findings about the effects of ethnic diversity on conflict levels stand out. First, there are conspicuous variations within more diverse and less diverse countries in terms of how severely spatially concentrated ethnic groups in these states fight against their regimes.[124] This empirical pattern provides evidence that ethnic diversity alone cannot determine the degrees of ethnic conflict.

Second, because of the following findings, whether more diverse or less diverse societies experience more intense conflict has been confirmed to be generally determined by whether their spatially concentrated groups have been largely prevented from having policy influence in a given political system. Specifically, in cases involving a concentrated ethnic group living in presidential-SMD systems, more diverse societies have been proved to better prevent severe ethnic conflict than states with only two groups[125] The same, though less significant and robust, effect can be found in cases

[124] More diverse and less diverse countries have been defined in this dissertation as states with multiple and states with two major ethnic groups, respectively.

[125] p=0.02 and <0.05 in 1-tailed tests when Alesina's and Annett's indices of ethnic fractionalization were used, respectively. P >0.10 when Fearon's index of ethnic fractionalization was used, however.

involving concentrated groups living in parliamentary-PR systems.[126] Conversely, in cases involving concentrated groups living in presidential-PR systems, states with two ethnic groups tend to better mitigate conflict intensity than states with multiple groups, albeit with weaker statistical evidence.[127] Furthermore, in cases involving concentrated groups living in parliamentary-SMD systems, ethnic diversity generally does not affect concentrated groups' conflict propensities. These findings are important because existing studies have overlooked how the impact of ethnic diversity is changed by the interaction between this factor and political institutions (e.g. Fearon and Laitin 2003; Fish and Brooks 2004). These studies have therefore failed to appreciate the complicated effects of ethnic diversity and almost never found statistical evidence for the importance of such a factor.

Third, spatially dispersed minorities tend to engage in similarly low levels of ethnic strife, regardless of whether these groups live in more diverse or less diverse societies. This fact confirms again our general image of this type of group. Dispersed groups are indeed very peaceful even when the ethnic nature of their societies does not favor their power sharing in a specific political system. Many existing studies on the link between ethnic diversity and ethnic conflict have also ignored this noticeable contrast between dispersed and concentrated groups. If I made the same mistake in this dissertation, I may have found no effects of ethnic diversity, either. The nonresults of ethnic diversity in cases involving dispersed groups may dilute the significant effects of this factor in cases involving concentrated groups. Consequently, ethnic diversity becomes an insignificant factor in a model which does not divide ethnic groups according to their spatial

[126] $p=0.05$ in an 1-tailed test when the Fearon data was used. $P>0.10$ when the Alesina and Annett data were used, however.
[127] $p<0.07$ in an 1-tailed test when the Annett data was used. $P>0.10$ when the Alesina and Fearon data were used.

distributions.

In Chapter 5, I have shown that concentrated groups become less combative when they have more say in policy-making compared to the case when they are largely prevented from having policy influence. In this chapter, I show that controlling for institutional configurations of government structures and electoral systems, spatially concentrated groups generally engage in more severe ethnic strife than dispersed groups. This pattern remains even when concentrated groups have had the institutional frameworks that best protect their shares of power, given the ethnic nature of their societies. These findings are important because past studies have usually made a loose distinction about the conflict propensity between concentrated and dispersed groups. Without controlling for the effects of political systems, there is no guarantee that spatially concentrated groups will be associated with the pursuance of independence or with more intense ethnic conflict, as existing literature frequently assumed (e.g. Ayres and Saideman 2000; Saideman and Ayres 2001; Saideman et al. 2002; Toft 2003). Even if these studies provided supportive evidence, their estimates were very likely to be biased.

In this chapter, I first discuss the statistical findings about the relations between ethnic diversity and ethnic conflict. I then discuss the empirical evidence about the link between ethnic distributions and ethnic strife. I conclude this chapter with a brief discussion about the precision and unbiasedness of my estimates, and how I improve these two qualities and obtain more significant and unbiased findings in Chapter 7 by performing a recently developed zero-inflated ordered probit model.

6.1 Major Hypotheses

I briefly reiterate related hypotheses to facilitate the discussion of this chapter's

statistical findings. Ethnic diversity is expected to have similar impact on both violent and nonviolent ethnic strife. Hypotheses 5a, 7a, 9a, 11a refer to the hypotheses about the link between ethnic diversity and violent ethnic conflict, while Hypotheses 5b, 7b, 9b, and 11b connect ethnic diversity with nonviolent ethnic conflict. Hypotheses comparing dispersed groups' conflict intensity in specific political systems—i.e. $\text{Hypotheses}_{\text{alternative}}$ 6a, 6b, 8a, 8b, 10a, and 10b—are left out because these hypotheses are exactly the same as those contrasting concentrated groups' conflict levels in certain political systems. There is, however, another competing hypothesis about dispersed groups' conflict levels, i.e. dispersed groups are believed to be less motivated and less capable of engaging in (intense) conflict, regardless of how many rival groups they face in specific political systems. These competing hypotheses (i.e. $\text{Hypotheses}_{\text{null}}$ 6a, 6b, 8a, 8b, 10a, and 10b) have also been omitted from this section, but should be kept in mind when discussing the estimates of ethnic diversity in cases involving dispersed groups.

6.1.1 The Impact of Ethnic Diversity

My theory expects the following hypotheses to be true.

> Hypotheses 5a and 5b: In cases involving a concentrated ethnic group living in parliamentary-PR systems, ceteris paribus, the expected level of ethnic conflict is less intense in countries having more than two ethnic groups than in those with only two groups.

In cases involving a concentrated ethnic group living in parliamentary-PR systems, states having more than two ethnic groups have advantages. The presence of multiple

ethnic groups in states using parliamentary-PR systems fosters the formation of coalition cabinets. For the members of a coalition, they share both executive and legislative power. For those outside coalition cabinets, they also find it easier to threaten the survival of these coalition cabinets and, hence, easier to compete for more rights and benefits. These groups therefore feel more secure, compared to the case in which they face a one-party majority cabinet, a likely outcome when parliamentary-PR systems are used in states with only two major ethnic groups.

> Hypotheses 7a and 7b: In cases involving a concentrated ethnic group living in presidential-PR systems, ceteris paribus, the expected level of ethnic conflict is less intense in countries having two major ethnic groups than in those with more than two groups.

This hypothesis reflects the advantages of less diverse societies in cases involving concentrated ethnic groups living in presidential-PR systems. In such cases, since only when these groups face one major rival group will their presidents be less likely to face a fragmented parliament and dominate all the ethnic others, the expected level of conflict is less intense in less diverse societies.

> Hypotheses 9a and 9b: In cases involving a concentrated ethnic group living in parliamentary-SMD systems, ceteris paribus, the expected level of ethnic conflict is similar regardless of how many rival groups the ethnic group in question faces.

Parliamentary-SMD systems tend to favor groups who form or join cabinets at the

expense of those who do not regardless of how many ethnic others these institutionally powerless groups face. Only one ethnic group is needed for the formation and survival of a single-party-majority cabinet when parliamentary-SMD systems are used in states having two major groups. Only a few more ethnic groups are required for the same purpose of a majority coalition cabinet when states with more than two groups employ these political systems. Consequently, in both types of societies, those prevented from having policy influence feel similarly insecure and, hence, engage in a similar level of ethnic strife.

> Hypotheses 11a and 11b: In cases involving a concentrated ethnic group living in presidential-SMD systems, ceteris paribus, the expected level of ethnic conflict is less intense in countries having more than two ethnic groups than in those with only two groups.

Presidential-SMD systems almost always produce divided governments in states having more than two ethnic groups and, hence, better ensure checks and balances between more, if not all, ethnic groups in such states. Conversely, when states have only two major groups, the occurrence of divided governments is much less frequent. The coethnic of the president is likely to exclusively control power. Powerless dominated groups thus cannot but engage in more intense ethnic conflict.

6.1.2 The Impact of Ethnic Spatial Distributions

Ethnic distributions are expected to have similar impact on both violent and nonviolent ethnic strife as well. Hypothesis 12a refers to the hypotheses about the link

between ethnic distributions and violent ethnic conflict, while Hypothesis 12b connects ethnic distributions with nonviolent ethnic conflict.

> Hypothesis 12a and 12b: Given specific government structures and electoral systems and regardless of the number of ethnic groups, ceteris paribus, concentrated groups' expected level of ethnic conflict is less intense than dispersed groups'.

As mentioned in the beginning of this chapter, comparing the conflict propensities of concentrated and dispersed groups requires controlling for the impact of government structures and electoral systems. How many rival others that these ethnic groups face does not matter. One example explains the reason. In cases involving ethnic groups living in parliamentary-PR systems, concentrated ethnic groups are likely to be associated with a higher level of ethnic conflict than dispersed groups. This probability remains even when the concentrated groups in question face multiple ethnic others while the dispersed groups in question face only one rival group. Although minorities' facing multiple ethnic others in parliamentary-PR systems better protects these groups' shares of power than facing only one rival group—as Hypothesis 5 suggests, although this hypothesis applies mainly to cases involving concentrated groups—an uneven distribution of power between dominant and minority groups is more likely to persist in both types of societies. Under this condition, the concentrated groups in question are still more likely to engage in more intense ethnic strife than the dispersed groups in question because the former groups are essentially more combative and have higher capability to fight for power.

With these hypotheses briefly re-discussed, I can now proceed to examine the empirical evidence for my theory.

6.2 Results

6.2.1 Ethnic Diversity

Table 6.1 presents the predicted rebellion levels of each type of ethnic society in cases involving concentrated groups living in specific political systems. There are clear variations within more diverse and less diverse societies as the comparison between Type 8 and Type 7 (predicted rebellion levels=0.07 and 1.90, respectively) and between Type 2 and Type 1 (predicted rebellion levels=0.38 and 1.46, respectively) shows. Holding political systems constant is required in order to understand the variable effects of ethnic diversity.

As expected, holding other factors at their sample means,[128] concentrated groups living in parliamentary-PR systems engage in less intense rebellion when they face more than one, instead of only one, rival group (i.e. predicted rebellion levels=0.61 vs. 1.46). In cases involving concentrated groups living in presidential-PR systems, states with only two major groups have a predicted rebellion score of 0.38, compared to a score of 0.59 for states with more than two groups. In cases involving concentrated groups living in presidential-SMD systems, more diverse states are associated with less severe rebellion than less diverse states. The only unexpected finding arises in cases involving concentrated groups living in parliamentary-SMD systems where states with two major ethnic groups outperform states with multiple groups in reducing the intensity of rebellion. Theoretically, both types of societies should be associated with a similar level of ethnic conflict. As Table 6.2 shows, the difference between the two types of societies becomes insignificant, however, after controlling for an additional random

[128] In this chapter, all the control variables are held at their sample means in the calculation of any predicted value.

Table 6.1: Predicted Rebellion Levels in Cases Involving Concentrated Groups Living under Specific Political Systems (Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Parliamentary-PR Systems			
Type 1: Having Two Major Groups	1.46 (1.16)	1.40 (1.12)	1.34 (1.19)
Type 5: Having More than Two Groups	0.61 (1.11)	0.29 (1.12)	0.44 (1.15)
Presidential-PR Systems			
Type 2: Having Two Major Groups	0.38 (1.01)	0.37 (0.99)	0.04 (1.06)
Type 6: Having More than Two Groups	0.59 (0.98)	0.59 (0.94)	0.73 (1.00)
Parliamentary-SMD Systems			
Type 3: Having Two Major Groups	0.55 (1.09)	0.32 (0.96)	0.53 (1.12)
Type 7: Having More than Two Groups	1.90** (0.85)	2.55 (0.82)	1.89** (0.88)
Presidential-SMD Systems			
Type 4: Having Two Major Groups	1.12 (1.03)	1.01 (1.01)	0.92 (1.09)
Type 8: Having More than Two Groups	0.07 (0.86)	0.17 (0.84)	0.54 (0.89)

Note: Types in boldface represent societies that better promote their minority groups' influence in policy making, given a specific political system. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.10; 2-tailed tests.

factor. This nonresult is consistent with Hypothesis 9a.

Table 6.2 presents the test results of ethnic diversity's marginal effects in other political systems. The upper and the lower panels refer to the estimates of the between-effects and the hierarchical models, respectively. The signs of ethnic diversity in specific political systems are as predicted, but only some of the estimates are significant.

Table 6.2: Marginal Effects of Ethnic Diversity on Rebellion
in Cases Involving Concentrated Groups Living under Specific Political Systems

Between-Effects Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 5 vs. Type 1	-0.85	1.42	-1.11	2.26*	-0.90	1.56
Type 2 vs. Type 6	-0.21	0.22	-0.22	0.27	-0.69	2.60*
Type 3 vs. Type 7	-1.35	3.40**	-2.23	15.46***	-1.36	3.37**
Type 8 vs. Type 4	-1.05	4.28**	-0.84	2.97**	-0.38	0.56
Hierarchical Linear Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	F	d	χ^2
Type 5 vs. Type 1	-0.90	1.42	-1.11	2.26*	-0.92	1.36
Type 2 vs. Type 6	-0.22	0.24	-0.22	0.27	-0.74	2.67*
Type 3 vs. Type 7	-0.78	1.06	-2.23	15.46***	-0.78	0.96
Type 8 vs. Type 4	-1.17	4.34**	-0.84	2.97**	-0.20	0.11

Note: d is calculated by subtracting the predicted rebellion levels of the later type from that of the former type in each pair of comparison. In each pair, the later type should be associated with a higher degree of ethnic conflict than the former type. The only exception is the comparison between Type 3 and Type 7, where theory predicts similar intensity of ethnic strife. ***p<.01; **p<.05; *p<.10; 1-tailed tests.

The distinction between states with different numbers of ethnic groups is most significant in cases involving concentrated groups living in presidential-SMD systems (p <0.05 when two of the three indices of ethnic fractionalization were used in both the between-effects and hierarchical models). This finding provides supportive evidence for Hypothesis 11a. Specifically, concentrated groups who live in presidential-SMD systems will be associated with 83%-94% lower levels of rebellion if these groups face multiple ethnic others, instead of only one rival group.

In cases involving concentrated groups living in parliamentary-PR and presidential-PR systems, there is also some, though weaker, evidence for Hypotheses 5a

and 7a. When Fearon's index is used, consistent with Hypothesis 5a, states with multiple ethnic groups outperform states with only two groups in cases involving concentrated groups living in parliamentary-PR systems ($p<0.07$). Specifically, concentrated groups who live in presidential-SMD systems will be connected with 79% lower degrees of rebellion if these groups face more than one rival group. The difference between the two types of societies will reach statistical significance if one will accept results significant at an 86% confidence level in 2-tailed tests.

When Annett's index is used, in accordance with Hypothesis 7a, concentrated groups living in presidential-PR systems engage in less intense rebellion when they face only one, instead of more than one, rival group ($p=0.05$). The effect in question corresponds to 95% lower degrees of rebellion.

Although the evidence is inconclusive in the sense that some indices of ethnic fractionalization do not produce significant results, the reason may be more about the number of observations than about the differences between the three highly correlated indices. As Table 6.2 shows, all the estimated differences between two types of societies have expected signs regardless of which indices have been used. It is likely that when N is larger, more significant results will be obtained. Regardless, there is strong evidence for Hypotheses 11a and some evidence for the other three hypotheses.

Table 6.3 presents the predicted rebellion levels of each type of ethnic society in cases involving dispersed groups living in specific political systems. It is impossible to test the impact of ethnic diversity in cases involving dispersed groups living in presidential-SMD systems because in my dataset, there is no observation of more diverse societies in such political systems. For the rest three pairs of comparison, contrary to my expectation, societies predicted to be associated with less intense rebellion

Table 6.3: Predicted Rebellion Levels in Cases Involving Dispersed Groups Living under Specific Political Systems (Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Parliamentary-PR Systems			
Type 9: Having Two Major Groups	0.15 (1.26)	0.02 (1.21)	-0.04 (1.29)
Type 13: Having More than Two Groups	0.17 (1.10)	0.17 (1.11)	0.04 (1.13)
Presidential-PR Systems			
Type 10: Having Two Major Groups	0.11 (1.08)	0.08 (1.06)	0.06 (1.14)
Type 14: Having More than Two Groups	-0.15 (1.31)	-0.15 (1.29)	-0.40 (1.18)
Parliamentary-SMD Systems			
Type 11: Having Two Major Groups	0.21 (1.06)	0.32 (1.00)	0.14 (1.09)
Type 15: Having More than Two Groups	0.50 (1.07)	-0.23 (1.38)	0.37 (1.09)
Presidential-SMD Systems			
Type 12: Having Two Major Groups	0.28 (1.17)	0.19 (1.14)	0.13 (1.20)

Note: Types in boldface represent societies that better promote their minority groups' influence in policy making, given a specific political system. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.10; 2-tailed tests.

are in fact more severe rebellion-prone. The difference between the two types of societies in any pair of comparison is insubstantial, however.

Table 6.4 presents the test results of ethnic diversity's marginal effects in cases involving dispersed groups in specific political systems. These results confirm that ethnic diversity does not significantly influence dispersed groups' conflict intensity regardless of which political systems their states use. While the test results are not shown, controlling for the presence of multiple random factors does not change this conclusion. These

Table 6.4: Marginal Effects of Ethnic Diversity on Rebellion
in Cases Involving Dispersed Groups Living under Specific Political Systems

Marginal Effects (Between-Effects Model)	Alesina et al.		Fearon		Annett	
	d	F	d	F	d	F
Type 13 vs. Type 9	0.02	0.00	0.15	0.03	0.08	0.01
Type 10 vs. Type 14	0.26	0.07	0.23	0.06	0.46	0.32
Type 11 vs.Type 15	-0.29	0.15	0.55	0.19	-0.23	0.10

Note: d is calculated by subtracting the predicted rebellion levels of the later type from that of the former type in each pair of comparison. The later type should be associated with a similar or a higher conflict level. ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

findings are consistent with Hypotheses$_{null}$ 6a, 8a, and 10a.

Table 6.5 presents the predicted protest levels of each type of ethnic society in cases involving concentrated groups living in specific political systems. Ethnic diversity is expected to have similar impact on both violent and nonviolent ethnic strife. In accordance with this expectation, societies predicted to be associated with more intense protest, i.e. societies in boldface in every pair of comparison, indeed seem to be more severe protest-prone. Societies expected to have similar levels of protest, i.e. Type 3 and Type 7, are also connected with relatively similar degrees of protest, especially after controlling for the effect of an additional random factor. This similarity has been confirmed in statistical tests as Table 6.6 shows, and has provided evidence for Hypothesis 9b.

The other test results of Table 6.6 provide weak evidence for Hypotheses 7b and 11b. Although the three d-estimates (for Type 5 vs. Type 1, Type 2 vs. Type 6, and Type 8 vs. Type 4) have expected signs, only one is statistically significant in the between-effects model. In accordance with Hypothesis 7b, less diverse societies outperform more diverse societies in managing ethnic protest in cases involving concentrated groups

Table 6.5: Predicted Protest Levels in Cases Involving Concentrated Groups Living under Specific Political Systems (Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Parliamentary-PR Systems			
Type 1: Having Two Major Groups	2.36**	2.24**	2.34**
	(0.93)	(0.95)	(0.96)
Type 5: Having More than Two Groups	1.88**	1.95**	1.90**
	(0.90)	(0.95)	(0.93)
Presidential-PR Systems			
Type 2: Having Two Major Groups	1.38*	1.40*	1.39
	(0.81)	(0.84)	(0.85)
Type 6: Having More than Two Groups	2.03**	2.04**	1.87**
	(0.79)	(0.80)	(0.80)
Parliamentary-SMD Systems			
Type 3: Having Two Major Groups	1.18	1.54*	1.15
	(0.88)	(0.81)	(0.90)
Type 7: Having More than Two Groups	1.68**	1.47**	1.69**
	(0.68)	(0.70)	(0.71)
Presidential-SMD Systems			
Type 4: Having Two Major Groups	1.86**	1.83**	1.85**
	(0.83)	(0.86)	(0.88)
Type 8: Having More than Two Groups	1.46**	1.48**	1.49**
	(0.70)	(0.71)	(0.72)

Note: Types in boldface represent societies that better promote their minority groups' influence in policy making, given a specific political system. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.10; 2-tailed tests.

living in presidential-PR systems. This finding is significant at 95% confidence level in 1-tailed tests when Alesina's and Fearon's indices of ethnic fractionalization were used in performing between-effects models. Specifically, concentrated groups who live in presidential-PR systems will be connected with an average of 31%-32% lower levels of protest if these groups face only one, instead of more than one, rival group. This

Table 6.6: Marginal Effects of Ethnic Diversity on Protest
in Cases Involving Concentrated Groups Living under Specific Political Systems

Between-Effects Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 5 vs. Type 1	-0.48	0.70	-0.29	0.21	-0.44	0.60
Type 2 vs. Type 6	-0.65	3.43**	-0.64	3.40**	-0.48	2.00*
Type 3 vs. Type 7	-0.50	0.70	0.07	0.02	-0.54	0.82
Type 8 vs. Type 4	-0.40	0.93	-0.35	0.68	-0.36	0.81
Hierarchical Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	χ^2	d	χ^2
Type 5 vs. Type 1	-0.55	0.73	-0.35	0.26	-0.52	0.64
Type 2 vs. Type 6	-0.56	2.03*	-0.57	2.14*	-0.38	1.01
Type 3 vs. Type 7	-0.01	0.00	-0.08	0.02	-0.05	0.01
Type 8 vs. Type 4	-0.68	1.91*	-0.65	1.66*	-0.56	1.32

Note: d is calculated by subtracting the predicted protest levels of the later type from that of the former type in each pair of comparison. In each pair, the later type should be associated with a higher degree of ethnic conflict than the former type. The only exception is the comparison between Type 3 and Type 7, where theory predicts similar intensity of ethnic strife. ***p<.01; **p<.05; *p<.10; 1-tailed tests.

effect evaporates in the hierarchical model (p=0.07 or 0.08 when these same fractionalization indices were used), however, unless one accepts results significant at a 90% confidence level in 1-tailed tests. The hierarchical model also produces weak evidence supporting Hypothesis 11b—in cases involving concentrated groups living in presidential-SMD systems, more diverse states better handle ethnic protest than less diverse states—if the same 90% confidence level is accepted (p=0.08 or 0.10 when Alesina's and Fearon's indices of ethnic fractionalization were used).

Regardless, these test results suggest that the effect of ethnic diversity on protest is generally quite weak. The merits of protest for the functioning and survival of a society

Table 6.7: Predicted Protest Levels in Cases Involving Dispersed Groups Living under Specific Political Systems (Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Parliamentary-PR Systems			
Type 9: Having Two Major Groups	1.13 (1.02)	1.20 (1.02)	1.16 (1.04)
Type 13: Having More than Two Groups	1.11 (0.89)	0.96 (0.94)	1.09 (0.92)
Presidential-PR Systems			
Type 10: Having Two Major Groups	0.98 (0.87)	1.00 (0.90)	1.08 (0.92)
Type 14: Having More than Two Groups	1.21 (1.06)	1.13 (1.09)	0.67 (0.95)
Parliamentary-SMD Systems			
Type 11: Having Two Major Groups	1.43 (0.86)	1.64 (0.85)	1.42 (0.88)
Type 15: Having More than Two Groups	2.47 (0.86)	3.06 (1.17)	2.50 (0.88)
Presidential-SMD Systems			
Type 12: Having Two Major Groups	1.45 (0.94)	1.45 (0.97)	1.47 (0.97)

Note: Types in boldface represent societies that better promote their minority groups' influence in policy making, given a specific political system. Standard errors are in parentheses. ***p<.01; **p<.05; *p<.10; 2-tailed tests.

may offset the distinctions not only between political systems but also between different ethnic societies in terms of their effects on protest.

Table 6.7 presents the predicted protest levels of each type of ethnic society in cases involving dispersed groups living in specific political systems. The differences between Type 9 and Type 13 and between Type 10 and Type 14 are generally trivial, although most of them have expected signs. Contrary to my expectation, the difference between theoretically similar Types 11 and 15 is largest among the three pairs of comparison.

Table 6.8: Marginal Effects of Ethnic Diversity on Protest
in Cases Involving Dispersed Groups Living under Specific Political Systems

Between-Effects Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 13 vs. Type 9	-0.02	0.00	-0.24	0.13	-0.07	0.01
Type 10 vs. Type 14	-0.23	0.09	-0.13	0.02	0.41	0.39
Type 11 vs. Type 15	-1.04	2.97**	-1.42	1.77*	-1.08	3.19**
Hierarchical Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	χ^2	d	χ^2
Type 13 vs. Type 9	-0.29	0.18	-0.48	0.44	-0.30	0.18
Type 10 vs. Type 14	0.02	0.00	0.12	0.02	0.44	0.45
Type 11 vs. Type 15	-0.98	2.24*	-1.34	1.62	-1.02	2.40*

Note: d is calculated by subtracting the predicted protest levels of the later type from that of the former type in each pair of comparison. In each pair, the later type should be associated with a similar or a higher degree of ethnic conflict. ***p<.01; **p<.05; *p<.10; 1-tailed tests.

Table 6.8 confirms the nonresults of the first two pairs of comparison. Although less diverse societies have been proved to better reduce protest intensity than more diverse societies in cases involving dispersed groups living in parliamentary-SMD systems, this effect becomes insignificant at the 95% confidence level in 1-tailed tests when controlling for the state-level random factor. Ethnic diversity indeed does not affect dispersed groups' conflict levels, in accordance with $\text{Hypotheses}_{\text{null}}$ 6b, 8b, and 10b.

In sum, I have found some evidence for my hypotheses about the effects of ethnic diversity. My findings are important since more and more studies have mistakenly denied the effect of ethnic diversity (Fearon and Laitin 2003; Fish and Brooks 2004). In the end of this chapter, I briefly discuss possible reasons to explain why between-effects and hierarchical models cannot provide more evidence for my hypotheses, and why a recently

developed zero-inflated ordered probit model serves as a better technique for my dataset.

6.2.2 Ethnic Spatial Distributions

Tables 6.9-6.16 present information and test results that connect ethnic distributions with the level of rebellion. Comparing Type 6 in Table 6.11 and Type 15 in Table 6.13 makes clear the point that contrasting the rebellion intensity of concentrated groups with that of dispersed groups requires controlling for political systems. Otherwise, concentrated groups do not necessarily engage in more intense rebellion than dispersed groups. As Tables 6.9-6.16 show, ceteris paribus, concentrated groups are generally associated with more intense rebellion than dispersed groups, given specific government structures and electoral systems and regardless of the number of their ethnic others.[129] Concentrated groups' predicted rebellion level is at least 3.8 times greater,[130] and can be as high as 70 times greater than dispersed groups' predicted rebellion intensity in each pair of comparison.[131] These significant differences provide some evidence for my theory about the impact of ethnic spatial distributions. Furthermore, the hierarchical model's estimates confirm the robustness of my findings.

Tables 6.17-6.24 present information and test results that relate ethnic distributions with the level of protest. A similar conclusion can be reached. Ceteris paribus, concentrated groups generally protest more severely against their regimes than dispersed groups, given specific government structures and electoral systems and regardless of the number of their ethnic others. When this is not the case, the estimates are insignificant except in two pairs of comparison, i.e. Type 15 vs. Type 3 and Type 15 vs. Type 7.

[129] There are only a few exceptions. All of those unexpected positive d-estimates are insignificant, however.
[130] Please refer to the difference between type 7 and type 15 when the Alesina data was used in analysis.
[131] Please refer to the difference between type 1 and type 9 when Fearon's index was used in analysis.

However, as Table 6.22 shows, there is no short answer about which types of groups in question will be associated with a higher level of protest. Regardless of which index of ethnic fractionalization was used, between-effects and hierarchical models always provide different results. Consequently, my theory about ethnic distributions is not verified nor falsified by these two pairs of comparison.

6.3 Conclusion and Discussion

I have found some evidence for the effects of ethnic diversity and groups' spatial distributions on ethnic conflict. Ethnic diversity generally has a stronger effect on rebellion levels than on protest intensity, probably because the positive effect of protest on the functioning and survival of a society weakens the distinction between more diverse and less diverse societies.

The findings of this chapter may have some flaws. First, my analysis has relied on the cross-sectional dimension of the original TSCS dataset. Given that the N has consequently been largely shrunk, the estimates may not be very precise. This may explain why many estimates with expected signs are insignificant. Second, some estimates may be biased because the between-effects and hierarchical models I use ignore the consequence that my rebellion data's probability mass at a single value of 0 may cause. I also mistakenly yet purposefully assume in the two models that ethnic conflict is an interval scale variable, as mentioned in Chapter 4.[132] In Chapter 7, I will discuss potentially biased estimates. I will also use the original TSCS dataset to perform a recently developed zero-inflated ordered probit model to test whether the aforementioned potential flaws influence my findings.

[132] Please refer to its footnote 4.

Table 6.9: Predicted Rebellion Levels in Cases Involving Groups Living under Parliamentary-PR Systems (Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 1: Concentrated Groups Facing One Rival Group	1.46 (1.16)	1.40 (1.12)	1.34 (1.19)
Type 5: Concentrated Groups Facing Multiple Ethnic Others	0.61 (1.11)	0.29 (1.12)	0.44 (1.15)
Type 9: Dispersed Groups Facing One Rival Group	0.15 (1.26)	0.02 (1.21)	-0.04 (1.29)
Type 13: Dispersed Groups Facing Multiple Ethnic Others	0.17 (1.10)	0.17 (1.11)	0.04 (1.13)

Note: Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 6.10: Marginal Effects of Ethnic Distributions on Rebellion in Cases Involving Groups Living under Parliamentary-PR Systems

Between-Effects Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 9 vs. Type 1	-1.31	3.53**	-1.38	4.89**	-1.38	3.89**
Type 9 vs. Type 5	-0.46	0.35	-0.27	0.12	-0.48	0.38
Type 13 vs. Type 1	-1.29	3.14**	-1.23	2.92**	-1.30	3.10**
Type 13 vs. Type 5	-0.44	0.35	-0.12	0.03	-0.40	0.28
Hierarchical Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	F	d	χ^2
Type 9 vs. Type 1	-1.15	2.79**	-1.38	4.89**	-1.16	2.87**
Type 9 vs. Type 5	-0.25	0.09	-0.27	0.12	-0.24	0.08
Type 13 vs. Type 1	-1.37	3.20**	-1.23	2.92**	-1.35	2.95**
Type 13 vs. Type 5	-0.47	0.39	-0.12	0.03	-0.43	0.34

Note: d is calculated by subtracting the predicted rebellion levels of the later type from that of the former type in each pair of comparison. In each pair, the later type should be associated with a higher degree of ethnic strife than the former type. ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

Table 6.11: Predicted Rebellion Levels in Cases Involving Groups Living under Presidential-PR Systems (Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 2: Concentrated Groups Facing One Rival Group	0.38 (1.01)	0.37 (0.99)	0.04 (1.06)
Type 6: Concentrated Groups Facing Multiple Ethnic Others	0.59 (0.98)	0.59 (0.94)	0.73 (1.00)
Type 10: Dispersed Groups Facing One Rival Group	0.11 (1.08)	0.08 (1.06)	0.06 (1.14)
Type 14: Dispersed Groups Facing Multiple Ethnic Others	-0.15 (1.31)	-0.15 (1.29)	-0.40 (1.18)

Note: Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 6.12: Marginal Effects of Ethnic Distributions on Rebellion in Cases Involving Groups Living under Presidential-PR Systems

Between-Effects Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 10 vs. Type 2	-0.27	0.37	-0.29	0.45	0.02	0.00
Type 10 vs. Type 6	-0.48	0.95	-0.51	1.21	-0.67	1.91*
Type 14 vs. Type 2	-0.53	0.29	-0.52	0.31	-0.44	0.30
Type 14 vs. Type 6	-0.74	0.55	-0.74	0.61	-1.13	1.98*
Hierarchical Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	F	d	χ^2
Type 10 vs. Type 2	-0.28	0.39	-0.29	0.45	0.03	0.00
Type 10 vs. Type 6	-0.50	0.95	-0.51	1.21	-0.71	1.92*
Type 14 vs. Type 2	-0.64	0.42	-0.52	0.31	-0.68	0.69
Type 14 vs. Type 6	-0.86	0.79	-0.74	0.61	-1.42	3.39**

Note: d is calculated by subtracting the predicted rebellion levels of the later type from that of the former type in each pair of comparison. In each pair, the later type should be associated with a higher degree of ethnic strife than the former type. ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

Table 6.13: Predicted Rebellion Levels in Cases Involving Groups Living under Parliamentary-SMD Systems (Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 3: Concentrated Groups Facing One Rival Group	0.55 (1.09)	0.32 (0.96)	0.53 (1.12)
Type 7: Concentrated Groups Facing Multiple Ethnic Others	1.90** (0.85)	2.55 (0.82)	1.89** (0.88)
Type 11: Dispersed Groups Facing One Rival Group	0.21 (1.06)	0.32 (1.00)	0.14 (1.09)
Type 15: Dispersed Groups Facing Multiple Ethnic Others	0.50 (1.07)	-0.23 (1.38)	0.37 (1.09)

Note: Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 6.14: Marginal Effects of Ethnic Distributions on Rebellion in Cases Involving Groups Living under Parliamentary-SMD Systems

Between-Effects Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 11 vs. Type 3	-0.34	0.24	0.00	0.00	-0.39	0.33
Type 11 vs. Type 7	-1.69	8.13***	-2.23	16.88***	-1.75	8.57***
Type 15 vs. Type 3	-0.05	0.00	-0.55	0.19	-0.16	0.03
Type 15 vs. Type 7	-1.40	4.37**	-2.78	5.04**	-1.52	5.07**
Hierarchical Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	F	d	χ^2
Type 11 vs. Type 3	-0.76	1.20	0.00	0.00	-0.83	1.42
Type 11 vs. Type 7	-1.54	5.68***	-2.23	16.88***	-1.61	5.47***
Type 15 vs. Type 3	-0.37	0.17	-0.55	0.19	-0.38	0.17
Type 15 vs. Type 7	-1.15	3.05**	-2.78	5.04**	-1.16	3.12**

Note: d is calculated by subtracting the predicted rebellion levels of the later type from that of the former type in each pair of comparison. In each pair, the later type should be associated with a higher degree of ethnic strife than the former type. ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

Table 6.15: Predicted Rebellion Levels in Cases Involving Groups Living under Presidential-SMD Systems (Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 4: Concentrated Groups	1.12	1.01	0.92
Facing One Rival Group	(1.03)	(1.01)	(1.09)
Type 8: Concentrated Groups	0.07	0.17	0.54
Facing Multiple Ethnic Others	(0.86)	(0.84)	(0.89)
Type 12: Dispersed Groups	0.28	0.19	0.13
Facing One Rival Group	(1.17)	(1.14)	(1.20)

Note: Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 6.16: Marginal Effects of Ethnic Distributions on Rebellion in Cases Involving Groups Living under Presidential-SMD Systems

Between-Effects Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 12 vs. Type 4	-0.84	2.19*	-0.82	2.30*	-0.79	1.87*
Type 12 vs. Type 8	0.21	0.09	0.02	0.00	-0.41	0.36
Hierarchical Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	F	d	χ^2
Type 12 vs. Type 4	-0.92	2.74**	-0.82	2.30*	-085	2.35*
Type 12 vs. Type 8	0.25	0.12	0.02	0.00	-0.65	0.80

Note: d is calculated by subtracting the predicted rebellion levels of the later type from that of the former type in each pair of comparison. In each pair, the later type should be associated with a higher degree of ethnic strife than the former type. ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

Table 6.17: Predicted Protest Levels in Cases Involving Groups Living under Parliamentary-PR Systems (Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 1: Concentrated Groups	2.36**	2.24**	2.34**
Facing One Rival Group	(0.93)	(0.95)	(0.96)
Type 5: Concentrated Groups	1.88**	1.95**	1.90**
Facing Multiple Ethnic Others	(0.90)	(0.95)	(0.93)
Type 9: Dispersed Groups	1.13	1.20	1.16
Facing One Rival Group	(1.02)	(1.02)	(1.04)
Type 13: Dispersed Groups	1.11	0.96	1.09
Facing Multiple Ethnic Others	(0.89)	(0.94)	(0.92)

Note: Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 6.18: Marginal Effects of Ethnic Distributions on Protest in Cases Involving Groups Living under Parliamentary-PR Systems

Between-Effects Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 9 vs. Type 1	-1.23	4.80**	-1.04	3.84**	-1.18	4.38**
Type 9 vs. Type 5	-0.75	1.42	-0.75	1.22	-0.74	1.34
Type 13 vs. Type 1	-1.25	4.53**	-1.28	4.35**	-1.25	4.47**
Type 13 vs. Type 5	-0.77	1.61	-0.99	2.19*	-0.81	1.73*
Hierarchical Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	χ^2	d	χ^2
Type 9 vs. Type 1	-1.12	4.32**	-0.96	3.73**	-1.09	4.14**
Type 9 vs. Type 5	-0.57	0.68	-0.61	0.66	-0.57	0.69
Type 13 vs. Type 1	-1.41	4.92**	-1.44	4.67**	-1.39	4.73**
Type 13 vs. Type 5	-0.86	2.21*	-1.09	2.87**	-0.87	2.27*

Note: d is calculated by subtracting the predicted protest levels of the later type from that of the former type in each pair of comparison. In each pair, the later type should be associated with a higher degree of ethnic strife than the former type. ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

Table 6.19: Predicted Protest Levels in Cases Involving Groups Living under Presidential-PR Systems (Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 2: Concentrated Groups	1.38*	1.40*	1.39
Facing One Rival Group	(0.81)	(0.84)	(0.85)
Type 6: Concentrated Groups	2.03**	2.04**	1.87**
Facing Multiple Ethnic Others	(0.79)	(0.80)	(0.80)
Type 10: Dispersed Groups	0.98	1.00	1.08
Facing One Rival Group	(0.87)	(0.90)	(0.92)
Type 14: Dispersed Groups	1.21	1.13	0.67
Facing Multiple Ethnic Others	(1.06)	(1.09)	(0.95)

Note: Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 6.20: Marginal Effects of Ethnic Distributions on Protest in Cases Involving Groups Living under Presidential-PR Systems

Between-Effects Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 10 vs. Type 2	-0.40	1.23	-0.40	1.13	-0.31	0.61
Type 10 vs. Type 6	-1.05	7.08***	-1.04	7.08***	-0.79	4.17**
Type 14 vs. Type 2	-0.17	0.05	-0.27	0.11	-0.72	1.21
Type 14 vs. Type 6	-0.82	1.07	-0.91	1.31	-1.20	3.49**
Hierarchical Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	χ^2	d	χ^2
Type 10 vs. Type 2	-0.52	2.19*	-0.51	2.07*	-0.44	1.37
Type 10 vs. Type 6	-1.08	6.16***	-1.08	6.41***	-0.82	3.82**
Type 14 vs. Type 2	-0.54	0.48	-0.63	0.67	-0.88	1.91*
Type 14 vs. Type 6	-1.10	2.20*	-1.20	2.63*	-1.26	4.40**

Note: d is calculated by subtracting the predicted protest levels of the later type from that of the former type in each pair of comparison. In each pair, the later type should be associated with a higher degree of ethnic strife than the former type. ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

Table 6.21: Predicted Protest Levels in Cases Involving Groups Living under Parliamentary-SMD Systems (Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 3: Concentrated Groups	1.18	1.54*	1.15
Facing One Rival Group	(0.88)	(0.81)	(0.90)
Type 7: Concentrated Groups	1.68**	1.47**	1.69**
Facing Multiple Ethnic Others	(0.68)	(0.70)	(0.71)
Type 11: Dispersed Groups	1.43	1.64	1.42
Facing One Rival Group	(0.86)	(0.85)	(0.88)
Type 15: Dispersed Groups	2.47	3.06	2.50
Facing Multiple Ethnic Others	(0.86)	(1.17)	(0.88)

Note: Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 6.22: Marginal Effects of Ethnic Distributions on Protest in Cases Involving Groups Living under Parliamentary-SMD Systems

Between-Effects Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 11 vs. Type 3	0.25	0.20	0.10	0.06	0.27	0.23
Type 11 vs. Type 7	-0.25	0.27	0.17	0.15	-0.27	0.32
Type 15 vs. Type 3	1.29	3.28**	1.52	2.01*	1.35	3.59**
Type 15 vs. Type 7	0.79	2.13*	1.59	2.32*	0.81	2.22*
Hierarchical Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	χ^2	d	χ^2
Type 11 vs. Type 3	-0.01	0.00	0.28	0.43	0.00	0.00
Type 11 vs. Type 7	-0.02	0.00	0.20	0.12	-0.05	0.01
Type 15 vs. Type 3	0.97	1.76*	1.62	2.28*	1.02	1.93*
Type 15 vs. Type 7	0.96	3.57**	1.54	2.66*	0.97	3.65**

Note: d is calculated by subtracting the predicted protest levels of the later type from that of the former type in each pair of comparison. In each pair, the later type should be associated with a higher degree of ethnic strife than the former type. ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

Table 6.23: Predicted Protest Levels in Cases Involving Groups Living under Presidential-SMD Systems (Between-Effects Model)

Type	Alesina et al.	Fearon	Annett
Type 4: Concentrated Groups	1.86**	1.83**	1.85**
Facing One Rival Group	(0.83)	(0.86)	(0.88)
Type 8: Concentrated Groups	1.46**	1.48**	1.49**
Facing Multiple Ethnic Others	(0.70)	(0.71)	(0.72)
Type 12: Dispersed Groups	1.45	1.45	1.47
Facing One Rival Group	(0.94)	(0.97)	(0.97)

Note: Standard errors are in parentheses. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Table 6.24: Marginal Effects of Ethnic Distributions on Protest in Cases Involving Groups Living under Presidential-SMD Systems

Between-Effects Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	F	d	F	d	F
Type 12 vs. Type 4	-0.41	0.81	-0.38	0.68	-0.38	0.67
Type 12 vs. Type 8	-0.01	0.00	-0.03	0.00	-0.02	0.00
Hierarchical Model						
	Alesina et al.		Fearon		Annett	
Marginal Effects	d	χ^2	d	χ^2	d	χ^2
Type 12 vs. Type 4	-0.51	1.42	-0.50	1.36	-0.50	1.33
Type 12 vs. Type 8	0.17	0.08	0.15	0.06	0.06	0.01

Note: d is calculated by subtracting the predicted protest levels of the later type from that of the former type in each pair of comparison. In each pair, the later type should be associated with a higher degree of ethnic strife than the former type. ***p<.01; **p<.05; *p<.*10*; 1-tailed tests.

Chapter 7: Modeling Rebellion Intensity with a Zero-Inflated Ordered Probit Model

This chapter tests whether ignoring my rebellion data's probability mass at the single value of zero, and whether treating an essentially ordinal scale variable as an interval scale variable have biased this dissertation's outcome in favor of my hypotheses.[133] I do so with an emphasis on whether the effects of political systems and ethnic diversity remain the same when using states, instead of groups, as the unit of discussion. I perform a recently developed zero-inflated ordered probit (ZIOP) model (with robust standard errors to take care of autocorrelation and heteroscedasticity). This model arguably serves as a more appropriate technique for my data structure and helps unravel the effects of the variables of interest on the probabilities of every rebellion level. Only the Alesina index of ethnic fractionalization is used in the analysis because Chapters 5-6 have shown that this index was the most representative data. This index always produced the same results as at least one of the other two indices. This chapter concludes that the ZIOP model generally better confirms my theories and the effects of control variable.[134]

Before introducing the ZIOP model and discussing the test results of this chapter, I briefly review the state of "dual regime" models which have been designed to analyze data with excess zeros.[135]

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[133] Please refer to Table 4.1 and footnote 4 of Chapter 4 for details about why the rebellion data should be ordered.

[134] In Chapter 5, I showed that only a few control variables are significant and some of them even have unexpected signs.

[135] The first regime model usually involves a selection, a censuring, or a hurdle equation which determines whether an individual will (be observed to) participate in specific political activity, such as engaging in protest and making political contributions. The second regime model determines an individual's level of political participation once s/he becomes a participant.

7.1 Dual-Regime Models for Interval, Ordered, and Event Count Data

The development of zero-inflated models is not new. Since 1958 in which Tobin devised the Tobit model to analyze data with an interval scale and negative yet censored values at zero, many more dual regime models have been proposed. For example, the Heckit model invented by Heckman (1979) has emerged as the default alternative to Tobit when values cluster at zero because of selection bias rather than censoring (Sigelman and Zeng 1999),[136] and when it is not obvious that a single set of coefficients would explain both regimes of models (Grier et al. 1994).

For other examples, hurdle Poisson models (Mullahy 1986; King 1989),[137] zero-inflated Poisson (ZIP) models (Lambert 1992; Greene 1994),[138] zero-inflated Binomial (ZIB) models with random effects (Hall 2000),[139] zero-inflated Negative Binomial (ZINB) models (Lambert 1992; Green 1994, 2000; Long 1997) were developed for event count data with preponderant zero observations.[140] There had been no techniques to address this same problem of ordinal scale variables until very recently when the ZIOP model was proposed by Harris and Zhao in 2004.

All these dual-regime models save the ZIOP model have been increasingly considered or used in the studies of the discipline. For example, Lubell et al. (2002) use a ZINB model to investigate the impact of watershed features on the benefits and

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[136] According to Sigelman and Zeng (1999), many studies have mistakenly used the Tobit model when the zeros of their data do not result from censoring mechanisms or when actual censoring is at other values than zero. Furthermore, the Heckit model has also been frequently and inappropriately used as an alternative to Tobit for analyzing exclusively nonnegative data. These misuses result in undesirable consequences, implying the importance of carefully selecting models.

[137] This model should be used for data with the absence of zero counts in the second stage of the model and with an asymmetrical probability distribution. Please refer to Zorn (1996) for the comparison of zero-inflated and hurdle Poisson specifications.

[138] This model is appropriate for data with the presence of zero counts in the second stage of the model and with a symmetrical probability distribution.

[139] This model works for upper bounded count data with excess zeros and with unit heterogeneity.

[140] ZINB models better deal with the overdispersion problem than ZIP models.

transaction costs on the emergence of watershed partnerships in the United States.[141] Clark (2003) performs a ZIP model to account for strategic interaction in world politics.[142] Tobit and Heckit regression models have also been employed to analyze a wide range of political phenomena, such as "campaign contributions (Chappell 1982; Grier and Munger 1993; Grier et al. 1994; McCarty and Rothenberg 1996), PAC activities (Romer and Snyder 1994), vote choice (Herron 1998), the president's use of military force (Morgan and Bickers 1992; Meernik 1994; Wang 1996), the occurrence of political protest (Walton and Ragin 1990; Roneck 1992), and the determinants of political violence (Jacobs and O'Brien 1998)" (Sigelman and Zeng 1999). The lately developed ZIOP model has never been used in any political science research except for in this study, to the best of my knowledge. This model should soon become popular since many political variables are inherently ordered and have excess zeros, such as many survey responses on opinions, ethnic conflict variables of the MAR dataset, reforms of electoral systems, corruption levels, and numerous others.

The burgeoning development and use of these zero-inflated models suggest the unwanted consequences resulting from misusing single regime models in the presence of dual regimes. For example, performing OLS regressions on interval scale variables with values censored at zero and with many zero observations would lead to biased and inconsistent estimates (Grier et al. 1994). For another example, performing poisson regression models in the presence of excess zeros would generate a huge gap between observed and predicted values for the percentage of counts (Hall 2000). For yet another example, using a conventional ordered probit model would not unravel the potentially

[141] Burgoon (2006) and McKay et al. (2007) also consider using ZINB models. This consideration of many studies suggests that paying attention to the potential excess of zeros has increasingly become a must in political science research involving event count data.

[142] Please refer to Lubell et al. (2005) for another example.

opposing effects of any regressors that have been included in both regimes of the model (Harris and Zhao 2004). This consequence may constitute one source of biased estimates of my between-effects and hierarchical models. Before discussing this point and the other findings of this chapter in detail, I introduce my ZIOP model in the next section.

7.2 The Zero-Inflated Ordered Probit Model

A ZIOP model involves two latent equations: a probit equation and an ordered probit equation (Harris and Zhao 2004). The first latent equation determines whether anti-regime ethnic rebellion will be recorded by coders of the dataset.[143] I argue that the level of democracy and regime durability impact on the outcome. More liberal and enduring democracies should better protect freedom of the press and have more well-developed and independent media, which ensures the availability of news reports about rebellion on which coders of the dataset rely to construct the variable. The ordered probit equation determines, once violent conflict is coded, the probability that ethnic groups engage in a specific level of violent conflict (including very small conflict that is practically not different from no conflict from the perspectives of data coders). The original 14 variables of interest and 8 control factors constitute the covariates of this

[143] Well-trained students who underwent a rigorous training period have served as the coders of the MAR dataset. I have tested whether adding other variables in this first equation changes my findings. These variables include political, economic, and cultural differentials between dominant and minority groups, which determine whether ethnic groups engage in rebellion. I expect that greater cultural differentials lead to higher likelihoods and higher levels of rebellion. Greater economic differentials lead to higher likelihoods yet lower levels of rebellion. Greater political differentials result in lower likelihoods yet higher levels of rebellion. All these expectations receive supportive evidence. More importantly, the effects of all the other variables remain unchanged. Since the major purpose of this chapter is to retest my theories, I present and discuss a simpler ZIOP model without these variables just mentioned. Please refer to Hines and Civettini (2005) for a Monte Carlo simulation testing the effects of two common types of misspecification in ZINB models. Their findings indicate that with the two types of misspecification, estimates on variables of interest are not biased towards finding significance, and, hence can be reported with confidence. While no similar simulation exists for the ZIOP model, my study shows that omitting important variables in the first regime of the model does not significantly change the effects of variables of interest.

second latent equation.

Let q denotes a binary variable specifying the split between the two regimes q = 0 (meaning no records of ethnic conflict) and q = 1 (meaning having records of ethnic conflict). This variable is associated with the first latent variable, $q^* = \mathbf{x}'\boldsymbol{\beta} + \varepsilon$, where $\mathbf{x}$ includes the variables of the level of democracy and regime durability that determine whether ethnic conflict will be recorded. $\boldsymbol{\beta}$ is a vector of unknown parameters to be estimated. The probability of violent conflict being recorded is given by

$$\Pr(q = 1|\mathbf{x}) = \Pr(q^* > 0|\mathbf{x}) = \Phi(\mathbf{x}'\boldsymbol{\beta}),$$

where $\Phi(.)$ indicates the cumulative distribution function of the univariate standard normal distribution.

Given that q = 1, conflict levels are represented by $\tilde{y}\,(\tilde{y} = 0, 1, ..., J)$, which is connected to the second underlying latent variable, $\tilde{y}^* = \mathbf{w}'\boldsymbol{\gamma} + u$, Where $\mathbf{w}$ is a vector of the original 22 variables. $\boldsymbol{\gamma}$ is a vector of unknown coefficients. As aforementioned, zero conflict is also allowed in this second stage of the model. Furthermore, while *enduring regime* appears in both equations, this variable has opposing effects.[144] The relation between $\tilde{y}^*$ and $\tilde{y}$ is given by

$$\tilde{y} = \begin{cases} 0 & \text{if } \tilde{y}^* \le 0 \\ 1 & \text{if } 0 < \tilde{y}^* \le \mu_1 \\ 2 & \text{if } \mu_1 < \tilde{y}^* \le \mu_2 \\ \text{M} & \text{M} \\ 7 & \text{if } \mu_6 \le \tilde{y}^*. \end{cases}$$

Where the μ's are parameters to be estimated with $\boldsymbol{\gamma}$. Assuming that u is normally distributed, the ordered probit probabilities are given by Greene (2003):

[144] As aforementioned, in terms of whether rebellion is marked down, *enduring regime* should have positive effects because that factor relates to the development of independent media as the fourth branch of government. In respect of the severity of ethnic conflict, however, *enduring regime* may have negative impact. Since ethnic conflict is more likely to be severe when regimes experience transitions, older regimes should better reduce conflict levels vis-à-vis younger regimes.

$$\Pr_j = \begin{cases} \Pr(\tilde{y} = 0 | \mathbf{w}, q = 1) = \Phi(-\mathbf{w}'\boldsymbol{\gamma}) \\ \Pr(\tilde{y} = 1 | \mathbf{w}, q = 1) = \Phi(\mu_1 - \mathbf{w}'\boldsymbol{\gamma}) - \Phi(-\mathbf{w}'\boldsymbol{\gamma}) \\ \Pr(\tilde{y} = 2 | \mathbf{w}, q = 1) = \Phi(\mu_2 - \mathbf{w}'\boldsymbol{\gamma}) - \Phi(\mu_1 - \mathbf{w}'\boldsymbol{\gamma}) \\ M \\ \Pr(\tilde{y} = 7 | \mathbf{w}, q = 1) = 1 - \Phi(\mu_6 - \mathbf{w}'\boldsymbol{\gamma}). \end{cases}$$

To observe a specific level of rebellion thus requires

$$y = q \times \tilde{y} > 1.$$

Put differently, a positive y requires jointly that ethnic conflict is recorded and that the level of conflict is big enough for data coders ($q = 1$ and $\tilde{y} > 0$). Conversely, no conflict ($y = 0$) is observed either because no conflict is recorded ($q = 0$) or because the conflict level is so small that it is practically not different from no conflict from the perspectives of data coders ($q = 1$ and $\tilde{y} = 0$). Assuming that ε and u have an identical and independent standard Gaussian distribution, the full probabilities of my ZIOP model are

$$\Pr_j = \begin{cases} \Pr(y = 0 | \mathbf{w}, \mathbf{x}) = \Pr(q = 0 | \mathbf{x}) + \Pr(q = 1) \Pr(\tilde{y} = 0 | \mathbf{w}, q = 1) \\ \Pr(y = 1 | \mathbf{w}, \mathbf{x}) = \Pr(q = 1 | \mathbf{x}) \Pr(\tilde{y} = 1 | \mathbf{w}, q = 1) \\ \Pr(y = 2 | \mathbf{w}, \mathbf{x}) = \Pr(q = 1 | \mathbf{x}) \Pr(\tilde{y} = 2 | \mathbf{w}, q = 1) \\ M \\ \Pr(y = 7 | \mathbf{w}, \mathbf{x}) = \Pr(q = 1 | \mathbf{x}) \Pr(\tilde{y} = 7 | \mathbf{w}, q = 1) \end{cases}$$

$$= \begin{cases} \Pr(y = 0 | \mathbf{w}, \mathbf{x}) = [1 - \Phi(\mathbf{x}'\boldsymbol{\beta})] + \Phi(\mathbf{x}'\boldsymbol{\beta})\Phi(-\mathbf{w}'\gamma) \\ \Pr(y = 1 | \mathbf{w}, \mathbf{x}) = \Phi(\mathbf{x}'\boldsymbol{\beta})[\Phi(\mu_1 - \mathbf{w}'\gamma) - \Phi(-\mathbf{w}'\gamma)] \\ \Pr(y = 2 | \mathbf{w}, \mathbf{x}) = \Phi(\mathbf{x}'\boldsymbol{\beta})[\Phi(\mu_2 - \mathbf{w}'\gamma) - \Phi(\mu_1 - \mathbf{w}'\gamma)] \\ M \\ \Pr(y = 7 | \mathbf{w}, \mathbf{x}) = \Phi(\mathbf{x}'\boldsymbol{\beta})[1 - \Phi(\mu_6 - \mathbf{w}'\gamma)]. \end{cases}$$

The log-likelihood function is

$$\lambda(\phi) = \sum_{j=1}^{J} \sum_{i=1}^{N} h_{ij} \ln\left[\Pr(y_i = j | \mathbf{x}_i, \mathbf{w}_i)\right]$$

Where

$$h_{ij} = \begin{cases} 1 \text{ if individual } i \text{ chooses outcome } j \\ 0 \text{ otherwise.} \end{cases}$$

For the starting values of the ZIOP model, ordered probit parameter estimates have been used for γ and μ.

7.3 Results

Table 7.1 reports the coefficient estimates of the ZIOP model. One most striking difference distinguishing this table from the analogous tables of Chapters 5-6 is that all save three variables of Table 7.1 produce significant estimates. Only a few variables are significant in the previous chapters.[145]

7.3.1 Control Variables

Table 7.2 presents the expected and estimated relations between control variables and ethnic conflict. The ordered parameters' signs and significance of both the between-effects and the ZIOP models are shown for the purpose of comparison.

As expected, the two splitting parameters, *level of democracy* and *enduring regime*, positively affect whether rebellion is recorded. Looking at the results for *enduring regime*, the between-effects model treating all zeros as homogenous mistakenly indicates that older regimes are more likely to experience severe rebellion. With the two types of zeros separated, the ZIOP model shows that older regimes' ethnic conflict is more likely to be recorded while there is no significant difference in the probabilities of observing a specific level of rebellion between more and less enduring regimes. Among the remaining seven ordered parameters, the ZIOP model produces five significant estimates with expected signs while the between-effects model generates only two, and one of them is barely significant at the 90% confidence level. Furthermore, *change in GDP per capita* produces a significant yet unexpectedly opposite estimate in the between-effects model. This estimate is likely to be biased due to the model's treating *rebellion* as interval data,

[145] Saideman et al.'s Prais-Winsten regression model with PCSE also provides only 3 significant estimates among the 8 control variables because of using an inappropriate model (Saideman et al. 2002).

Table 7.1: ZIOP Model: Rebellion, 1985-2003

Splitting Parameters	b	SE
Level of democracy	.15***	.05
Enduring regime	.03***	.00
Constant	-1.64***	.36
Ordered Parameters		
Parliamentary	1.03***	.37
PR system	-.11	.41
Concentration	2.68***	.35
PAR*PR	-5.73***	.51
PAR*Fractionalization	-.70*	.40
PAR*Concentration	-3.40***	.49
PR*Fractionalization	-6.02***	.45
PR*Concentration	-1.96***	.45
Fractionalization*Concentration	-2.09***	.31
PAR*PR*Fractionalization	11.46***	.91
PAR*PR*Concentration	9.85***	.73
PAR*Fractionalization*Concentration	4.16***	.60
PR*Fractionalization*Concentration	7.73***	.62
PAR*PR*Fractionalization*Concentration	-15.91***	1.13
Federal system	-.29**	.14
Enduring regime	-.00	.00
First election	.46**	.22
Log GDP per capita	-.49***	.06
Change in GDP per capita	.06	1.17
Political differentials	.27***	.05
Economic differentials	-.16***	.04
Cultural differentials	.23***	.06
Constant	2.31***	.66
μ_1	.73***	.07
μ_2	1.23***	.09
μ_3	1.44***	.10
μ_4	2.05***	.12
μ_5	2.66***	.15
μ_6	3.36***	.18

Table 7.2: The Expected and Estimated Relations between Control Variables and Rebellion

	Expected Relations	Estimated Relations (BEM)	Estimated Relations (ZIOP)
Splitting Parameters			
Level of democracy	+	NA	+***
Enduring regime	+	NA	+***
Ordered Parameters			
Federal system	- or 0	-	-**
Enduring regime	-	+*	-
First election	+	+	+**
Log GDP per capita	-	-**	-***
Change in GDP per capita	-	+*	+
Politiacl differentials	+	+*	+***
Economic differentials	+	-	-***
Cultural differentials	+	+	+***

Note: BEM stands for between-effects models. ***p<.01; **p<.05; *p<.10; 2-tailed tests.

and ignoring the problem of excess zeros. Although the variable of *economic differentials* is surprisingly associated with a negative sign in the ZIOP model, one reason may explain this unexpected finding. According to Horowitz (1985), ethnic divisions of labor, which he finds foster mutually complementary economic roles between ethnic groups, usually mitigate rather than facilitate economic competition and political conflict between groups. In societies with greater economic distances between ethnic groups, arguably it is more likely to see ethnic divisions of labor, and hence, less severe ethnic conflict.

In sum, the discussion of Table 7.2 concludes that the ZIOP model better confirms

Table 7.3: Full Probabilities of Each Level of Rebellion

Type	Prob[y=0]	Prob[y=1]	Prob[y=2]	Prob[y=3]	Prob[y=4]	Prob[y=5]	Prob[y=6]	Prob[y=7]
Concentrated Groups Facing One Rival Group								
Type 1: PAR-PR Systems	0.3909	0.1182	0.1219	0.0566	0.1483	0.0985	0.0502	0.0154
Type 2: PRE-PR Systems	0.7698	0.1442	0.0516	0.0126	0.0171	0.0040	0.0007	0.0000
Type 3: PAR-SMD Systems	0.8368	0.1117	0.0333	0.0073	0.0089	0.0018	0.0003	0.0000
Type 4: PRE-SMD Systems	0.3650	0.0841	0.1036	0.0535	0.1587	0.1263	0.0780	0.0308
Concentrated Groups Facing Multiple Rival Groups								
Type 5: PAR-PR Systems	0.6674	0.1786	0.0815	0.0232	0.0360	0.0107	0.0024	0.0002
Type 6: PRE-PR Systems	0.8534	0.1025	0.0290	0.0062	0.0073	0.0014	0.0002	0.0000
Type 7: PAR-SMD Systems	0.4977	0.1815	0.1255	0.0458	0.0922	0.0410	0.0138	0.0025
Type 8: PRE-SMD Systems	0.7732	0.1427	0.0506	0.0123	0.0166	0.0039	0.0007	0.0000
Dispersed Groups Facing One Rival Group								
Type 9: PAR-PR Systems	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Type10: PRE-PR Systems	0.9125	0.0662	0.0150	0.0028	0.0029	0.0005	0.0001	0.0000
Type11: PAR-SMD Systems	0.6598	0.1803	0.0838	0.0240	0.0378	0.0114	0.0026	0.0003
Type12: PRE-SMD Systems	0.8952	0.0775	0.0189	0.0037	0.0040	0.0007	0.0001	0.0000
Dispersed Groups Facing Multiple Rival Groups								
Type13: PAR-PR Systems	0.9067	0.0700	0.0163	0.0031	0.0033	0.0005	0.0001	0.0000
Type14: PRE-PR Systems	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Type15: PAR-SMD Systems	0.8334	0.1135	0.0342	0.0075	0.0092	0.0018	0.0003	0.0001

Note: Rebellion was measured by a 8-point scale with 0=none reported, 1=political banditry, 2=campaigns of terrorism, 3= local rebellion, 4=small-scale guerrilla activity, 5=intermediate guerrilla activity, 6= large-scale guerrilla activity, and 7=protracted civil war.

Table 7.4: Conditional Probabilities of Each Level of Rebellion

Type	Prob[y=0]	Prob[y=1]	Prob[y=2]	Prob[y=3]	Prob[y=4]	Prob[y=5]	Prob[y=6]	Prob[y=7]
Concentrated Groups Facing One Rival Group								
Type 1: PAR-PR Systems	0.0860	0.1774	0.1829	0.0849	0.2225	0.1477	0.0754	0.0232
Type 2: PRE-PR Systems	0.6546	0.2163	0.0774	0.0190	0.0256	0.0060	0.0010	0.0001
Type 3: PAR-SMD Systems	0.7551	0.1676	0.0500	0.0110	0.0134	0.0026	0.0004	0.0000
Type 4: PRE-SMD Systems	0.0471	0.1263	0.1555	0.0803	0.2382	0.1896	0.1171	0.0460
Concentrated Groups Facing Multiple Rival Groups								
Type 5: PAR-PR Systems	0.5009	0.2680	0.1223	0.0347	0.0541	0.0160	0.0035	0.0004
Type 6: PRE-PR Systems	0.7800	0.1538	0.0435	0.0093	0.0110	0.0021	0.0003	0.0000
Type 7: PAR-SMD Systems	0.2462	0.2723	0.1883	0.0688	0.1383	0.0616	0.0207	0.0038
Type 8: PRE-SMD Systems	0.6597	0.2141	0.0759	0.0185	0.0249	0.0058	0.0010	0.0001
Dispersed Groups Facing One Rival Group								
Type 9: PAR-PR Systems	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Type10: PRE-PR Systems	0.8687	0.0994	0.0226	0.0042	0.0044	0.0007	0.0001	0.0000
Type11: PAR-SMD Systems	0.4894	0.2706	0.1257	0.0361	0.0568	0.0171	0.0038	0.0004
Type12: PRE-SMD Systems	0.8427	0.1163	0.0283	0.0055	0.0060	0.0010	0.0001	0.0000
Dispersed Groups Facing Multiple Rival Groups								
Type13: PAR-PR Systems	0.8600	0.1051	0.0245	0.0046	0.0049	0.0008	0.0001	0.0000
Type14: PRE-PR Systems	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Type15: PAR-SMD Systems	0.7500	0.1703	0.0513	0.0113	0.0139	0.0028	0.0004	0.0000

Note: Rebellion was measured by a 8-point scale with 0=none reported, 1=political banditry, 2=campaigns of terrorism, 3= local rebellion, 4=small-scale guerrilla activity, 5=intermediate guerrilla activity, 6= large-scale guerrilla activity, and 7=protracted civil war.

the effects of these control variables than the between-effects and hierarchical models. In order to make sense of the coefficient magnitudes of the variables of interest, I calculate the *full* probabilities of my ZIOP model by holding the institutional and contextual factors at their two different values in turn and the other variables at their sample means. I report these full probabilities on Table 7.3. The marginal effects of political systems and ethnic contexts can be derived by comparing these probabilities. I do not present the marginal effects of control variables since these effects are not the focus of this study.

Table 7.3 provides strong support for my hypotheses about the effect of power sharing. In addition to discussing some numbers of this table, I rely on a statistic,

$$S = \frac{\Pr(Y \geq 1 | \text{Type B}, \bar{\mathbf{x}}_c)}{\Pr(Y \geq 1 | \text{Type A}, \bar{\mathbf{x}}_c)} - 1,$$

to better summarize the findings. $Y \geq 1$ represents the event of "having recorded and nontrivial violent conflict ($q = 1$ and $\tilde{y} > 0$)". $\bar{\mathbf{x}}_c$ denotes control variables whose values are held at their sample means.

If S<0, then $\Pr(Y \geq 1 | \text{Type B}, \bar{\mathbf{x}}_c) < \Pr(Y \geq 1 | \text{Type A}, \bar{\mathbf{x}}_c)$. That is, changing from Type A to Type B decreases the probability of having violent conflict, and S is the proportion decrease under Type B using Type A as a baseline. Conversely, if S>0, then changing from Type A to Type B increases the probability of having rebellion, and S is the proportion increase.

Together with the S statistic in the following tables is the standard χ^2 statistic, which compares the coefficient magnitudes of each political system and ethnic context. While we cannot make sense of these coefficients, their χ^2 tests provide information about the significance of the differences between these coefficients.

Drawing histograms is another way of summarizing the effects of these variables of

interest. The following figures present the *conditional* (i.e. the ordered probit) probabilities of each level of rebellion in cases involving different political systems and ethnic contexts. The empirical patterns about the effects of the institutional and ethnic factors remain the same regardless of looking at the full or the conditional probabilities. However, the conditional probabilities better capture the focus of my theories, i.e. the effects of political systems and ethnic contexts, once rebellion is recorded. Table 7.4 reports these conditional probabilities which have been used to draw histograms. It can be found that while conditional probabilities are lower than full probabilities for y=0, the reduction associated with theoretically worse political systems (e.g. Type 1) or ethnic contexts (e.g. Type 4) is greater than theoretically better political systems (e.g. Type 2) or ethnic contexts (e.g. Type 12). Put differently, the effects of the institutional and contextual factors become larger once we focus on conditional probabilities. Histograms made from Table 7.4 thus better highlight the impact of these political and contextual factors.

7.3.2 Political Institutions

7.3.2.1 States with Two Ethnic Groups

Table 7.5 presents the S and χ^2 statistics, which have been calculated from the full probabilities of Table 7.3, for cases involving states with two ethnic groups. The test results of Table 7.5 are consistent with my expectations. Presidential-PR systems (Type 2) have been proved to better prevent rebellion and severe violent conflict than most of the other political systems in cases involving concentrated groups facing one rival group (Types 1, 3, and 4). Specifically, in these cases, changing from parliamentary-PR and presidential-SMD systems to presidential-PR

Table 7.5: Proportion Change of Rebellion and Marginal Effects of Political Systems in Cases Involving States with Two Ethnic Groups

	S	χ^2
Concentrated Groups		
PRE-PR (Type 2) vs. PAR-PR (Type 1)	-0.62	41.93***
PRE-PR (Type 2) vs. PAR-SMD (Type 3)	0.44	1.26
PRE-PR (Type 2) vs. PRE-SMD (Type 4)	-0.63	85.71***
Dispersed Groups		
PRE-PR (Type 10)vs. PAR-PR (Type 9)	NA[#]	210.68***
PRE-PR (Type 10) vs. PAR-SMD (Type 11)	-0.74	13.33***
PRE-PR (Type 10)vs. PRE-SMD (Type 12)	-0.10	0.08

[#] S is unavailable because Type 9 has a zero probability of having recorded rebellion. Type 10 has a 9% probability.

Note: S is calculated by first dividing the former type (a theoretically desirable system) of each pair of comparison by the latter type (a theoretically undesirable system), and then subtracting one from the result. ****p*<.01; ***p*<.05; **p*<.*10*; 2-tailed tests.

systems are associated with a 62% and a 63% proportion decrease in the probability of experiencing rebellion (Pr(y$\geqq$1), respectively. Or equivalently, presidential-PR systems have a 38% and a 40% lower probability to experience rebellion than parliamentary-PR and presidential-SMD systems, respectively. Furthermore, Table 7.3 shows that while ethnic groups under presidential-PR systems have a little higher probability to participate in political banditry (y=1), these groups have lower probabilities to engage in more severe rebellion (y>1) than their counterparts under most of the other systems. While theoretically undesirable parliamentary-SMD systems seem to outperform presidential-PR systems (Pr(y=0) = 84% and 77%, respectively), as suggested in the positive S statistic, the difference is both statistically and substantively insignificant.

In cases involving dispersed groups facing one rival group (Types 9-12), while some institutions have significant effects on these groups' conflict behavior, these effects have

been proved to be relatively small. All these groups in question have rarely engaged in conflict (Pr(y=0)≧90% for three out of the four types) and acted as heavy combatants.[146] The groups living in states with parliamentary-SMD systems constitute the only exception. The significant difference between this type of group (Type 11) and dispersed groups living in states with presidential-PR systems (Type 10) confirms the superiority of presidential-PR systems (Pr(y=0)=91%) over parliamentary-SMD systems (Pr(y=0)=66%) in states with two ethnic groups. An analogous hypothesis has been rejected in cases involving concentrated groups. Because of this finding in cases involving dispersed groups and the aforementioned findings in cases involving concentrated groups, presidential-PR systems have been proved to provide the *best* institutional design for states with two major ethnic groups than *all* the other political systems. This strong conclusion will not hold if states with two ethnic groups do not (and will never) have spatially dispersed groups. According to the MAR dataset, this was rarely the case. Both the between-effects and hierarchical models of this dissertation have failed to find that presidential-PR systems outperform parliamentary-SMD systems in less divided societies, suggesting again the advantage of the ZIOP model in analyzing my dataset.

Figures 7.1-2 based on the conditional probabilities of Table 7.4 provide graphical display of my findings.

[146] Although parliamentary-PR systems in Type 9 significantly and unexpectedly outperform presidential-PR systems in Type 10, the difference in Pr(y=0) is very small (9%) and much smaller than that between these two systems in cases involving concentrated groups facing one rival group (38%). When considering institutional engineering, a less diverse state with both concentrated and dispersed groups should therefore choose presidential-PR systems.

Figure 7.1: The Propensity of Concentrated Groups for Conflict in Countries with Two Groups (Types 1-4)

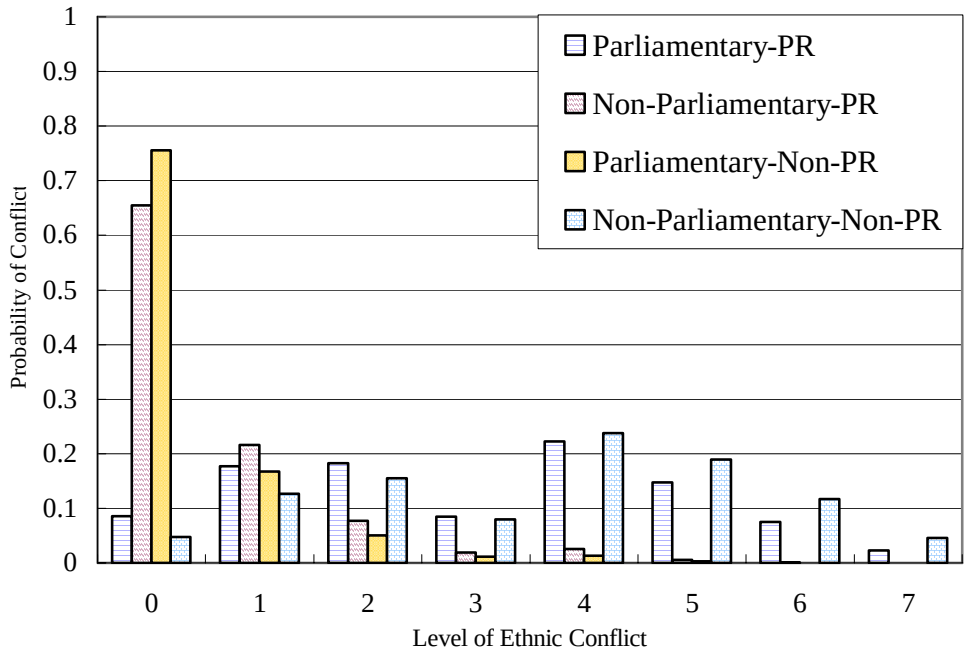


Figure 7.2: The Propensity of Dispersed Groups for Conflict in Countries with Two Groups (Types 9-12)

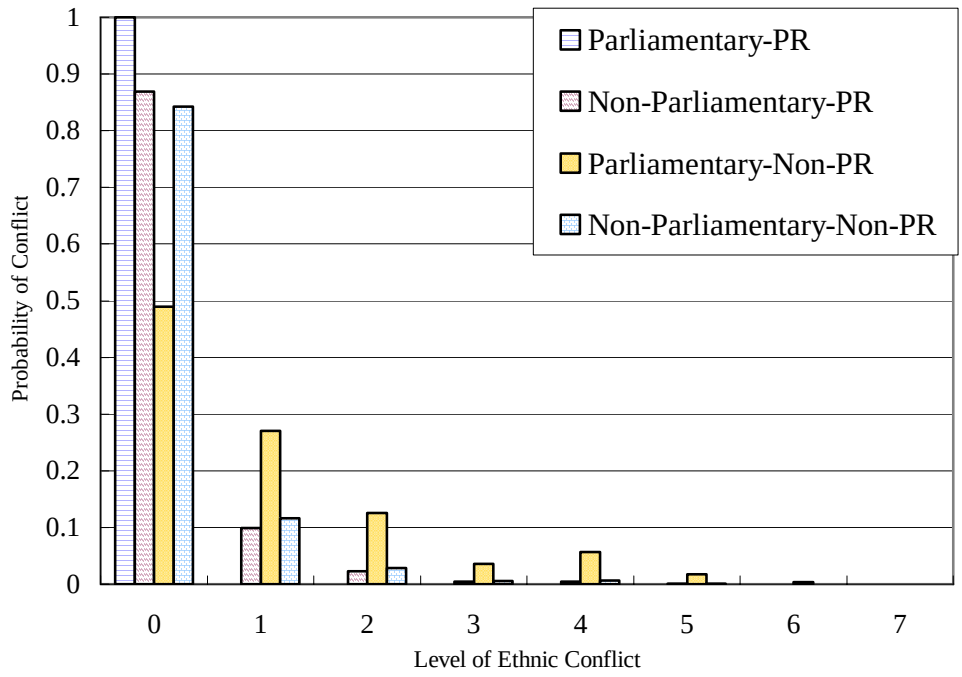


Table 7.6: Proportion Change of Rebellion and Marginal Effects of Political Systems in Cases Involving States with Multiple Ethnic Groups

	S	χ^2
Concentrated Groups		
PAR-PR (Type 5) vs. PAR-SMD (Type 7)	-0.34	6.17**
PRE-PR (Type 6) vs. PAR-SMD (Type 7)	-0.70	35.72***
PRE-SMD (Type 8) vs. PAR-SMD (Type 7)	-0.54	14.02***
Dispersed Groups		
PAR-PR (Type 13) vs. PAR-SMD (Type 15)	-0.47	0.63
PRE-PR (Type 14) vs. PAR-SMD (Type 15)	NA[#]	260.34***

[#] S is unavailable because Type 14 has a zero probability of having recorded rebellion. Type 15 has a 17% probability.

Note: S is calculated by first dividing the former type (a theoretically desirable system) of each pair of comparison by the latter type (a theoretically undesirable system), and then subtracting one from the result. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

7.3.2.2 States with Multiple Ethnic Groups

In cases involving concentrated groups facing multiple ethnic others (Types 5-7), in accordance with the previous findings of Chapter 5, parliamentary-SMD systems (Type 7) perform uniformly worse than all the other systems (Types 5, 6, and 8) as shown in Type 7's being associated with a much higher probability to fight violently against their regimes (Pr(y>0)=50%, compared to Type 5's 33%, Type 6's 15%, and Type 8's 23%). Table 7.6 reports the significance levels of these differences between parliamentary-SMD and all the other systems, as well as the proportion decrease when changing from parliamentary-SMD systems to all the other political systems in the cases in question.

In cases involving dispersed groups facing multiple ethnic others (Types 13-15), the effects of institutions are generally smaller because all these dispersed groups have a low probability to have recorded rebellion as Tables 7.3 shows (Pr(y>0)=0~17%).

Table 7.7: Proportion Change of Rebellion and Marginal Effects of Ethnic Diversity in Cases Involving States with Parliamentary-PR Systems

	S	χ^2
Concentrated Groups		
Multiple Ethnic Others (Type 5) vs. One Rival Group (Type 1)	-0.46	16.41***
Dispersed Groups		
Multiple Ethnic Others (Type 13) vs. One Rival Group (Type 9)	NA[#]	99.60***

[#] S is unavailable because Type 9 has a zero probability of having recorded rebellion. Type 13 has a 9% probability.

Note: S is calculated by dividing the former type (a theoretically desirable ethnic context) of each pair of comparison by the latter type (a theoretically undesirable ethnic context, and then subtracting one from the result. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

Regardless, parliamentary-SMD systems perform uniformly worse than all the other systems, and the difference between these undesirable systems and presidential-PR systems is statistically significant. The conclusion I made in Chapter 5 remains the same, i.e. for countries with multiple ethnic groups, the only institutional configuration they need to avoid is a parliamentary-SMD system.

Figures 7.3-4 based on the conditional probabilities of Table 7.4 provide graphical evidence of this conclusion.

In sum, the ZIOP model provides three findings about the impact of political systems. First, the conclusion I made about the best institutional design for concentrated groups remain the same. Second, contrary to my previous findings, some institutions significantly impact on the probability that dispersed groups engage in heavy rebellion (Pr (y$\geqq$1)). Theoretically desirable institutions have been proved to better reduce the likelihood of these groups' engagement in severe rebellion, compared to some theoretically undesirable systems (i.e. Type 10 vs. Type 11 and Type 14 vs. Type 15). These unique findings that the ZIOP model provides further highlight the importance of

institutional engineering. Although dispersed groups are more likely to co-exist peacefully with other ethnic groups, institutions are not completely irrelevant to dispersed groups. Third, more often than not, what better meets the needs of concentrated groups also better serves the interests of dispersed groups, controlling for ethnic diversity. This finding, though contrary to that of Chapter 5 which refuses the effects of political systems in cases involving dispersed groups, provides good news to institutional designers. Institutional designers do not need to worry about the divergent preferences of concentrated and dispersed ethnic groups. When political systems perform differently in cases involving these two types of ethnic groups, political systems have much stronger effects on preventing severe conflict in cases involving concentrated groups than in cases involving dispersed groups. Put differently, the attitude of concentrated groups should dominate that of dispersed groups in institutional design in order to achieve greater political stability.

7.3.3 Ethnic Diversity

7.3.3.1 States with Parliamentary-PR Systems

Table 7.7 presents the S and χ^2 statistics for cases involving states with parliamentary-PR systems. In the analysis of Chapter 6, the effect of ethnic diversity in these states is consistent with the expectation of my theory, but is statistically insignificant. The ZIOP model provides better results. Parliamentary-PR systems in cases involving concentrated groups facing multiple rival groups (Type 5) have a much higher probability of observing zero rebellion (Pr(y=0)=67%) and a significantly lower probability of observing heavy rebellion (Pr(y>1)=15%) than their counterparts in

Figure 7.3: The Propensity of Concentrated Groups for Conflict in Countries with Multiple Groups (Types 5-8)

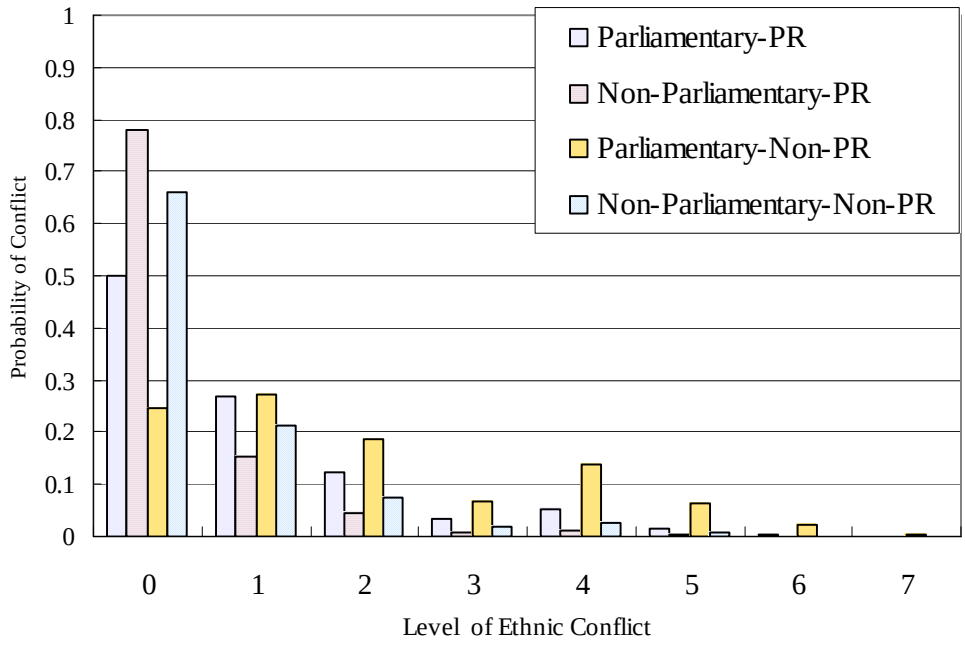


Figure 7.4: The Propensity of Dispersed Groups for Conflict in Countries with Multiple Groups (Types 13-15)

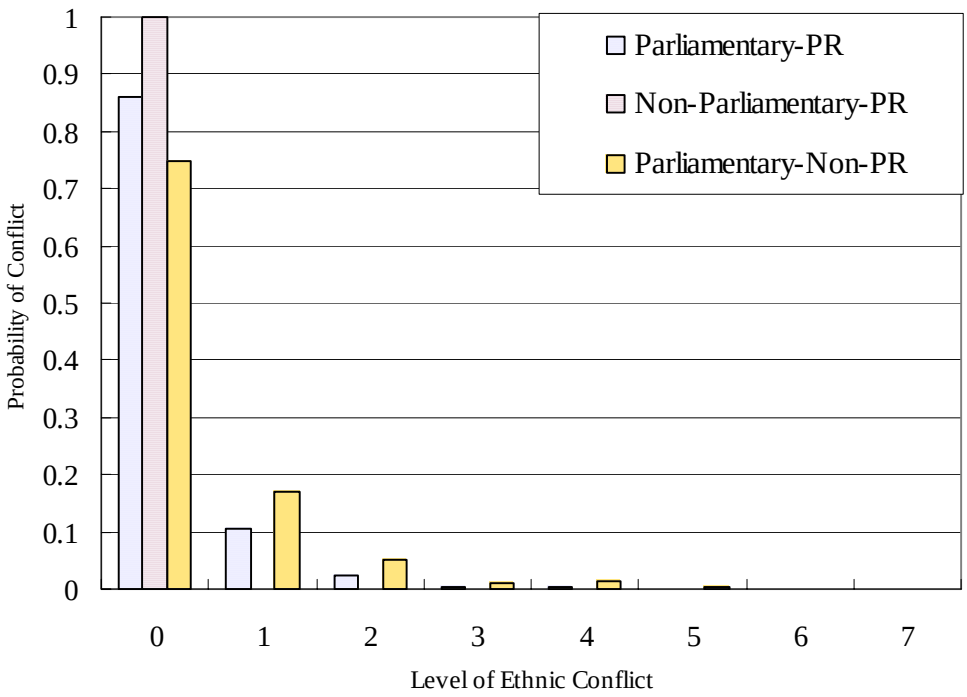


Table 7.8: Proportion Change of Rebellion and Marginal Effects of Ethnic Diversity in Cases Involving States with Presidential-PR Systems

	S	χ^2
Concentrated Groups		
Multiple Ethnic Others (Type 2) vs. One Rival Group (Type 6)	0.53	3.75*
Dispersed Groups		
Multiple Ethnic Others (Type 10) vs. One Rival Group (Type 14)	NA[#]	176.53***

[#] S is unavailable because Type 14 has a zero probability of having recorded rebellion. Type 10 has a 9% probability.

Note: S is calculated by dividing the former type (a theoretically desirable ethnic context) of each pair of comparison by the latter type (a theoretically undesirable ethnic context), and then subtracting one from the result. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

cases involving concentrated groups facing only one rival group (Type 1 with Pr(y=0)=39% and Pr(y>1)=49%). The analogous comparison in cases involving dispersed groups (Type 9 vs. Type 13) find opposite results, but their differences in Pr(y=0) and Pr (y>1) are only 9% and only 3%, respectively. While I have not had an explanation for these mixed results, these findings lead to a conclusion that is largely consistent with my expectation: in cases involving ethnic groups living in parliamentary-PR systems, heavy rebellion is less likely in states with more than two ethnic groups than in those with only two groups. Two points explain the reasons. First, the difference between Type 9 and Type 13 is substantively much less substantial than that between Type 1 and Type 5. Second, ethnically divided societies with multiple groups rarely have only concentrated or dispersed groups. Given these reasons, parliamentary-PR systems in states with multiple ethnic groups are less likely to experience (severe) rebellion than their counterparts in states with only two ethnic groups, unless heterogeneous states have much more dispersed groups than concentrated groups.

Figures 7.5-6 based on the conditional probabilities of Table 7.4 provide graphical display of these findings.

7.3.3.2 States with Presidential-PR Systems

Table 7.8 presents the S and χ^2 statistics for cases involving states with presidential-PR systems. In these cases, concentrated groups facing multiple rival groups (Type 6) have a significantly higher and lower probability of observing zero rebellion (Pr(y=0)=85%) and heavy rebellion (Pr(y>1)=5%), respectively, than their counterparts facing only one rival group (Type 2 with Pr(y=0)=77% and Pr(y>1)=9%). The analogous comparison in cases involving dispersed groups (Type 10 vs. Type 14) finds a similar result. Specifically, Pr(y=0)=91% and Pr(y>1)=2% for Type 10, and Pr(y=0)=100% and Pr(y>1)=0% for Type 14. Though contrary to my theory, it is not surprising that presidential-PR systems in states with multiple groups (Types 6 and 14) better prevent rebellion and severe conflict than their counterparts in states with only two major groups (Type 2 and 10). As explained in Chapter 5, all the electoral systems used in Types 6 and 14 somehow constrain a president's incentives to take care of only the needs of his group to the extent that hurts the interest of his ethnic others. Because of this inherent desirable feature of Types 6 and 14 in my dataset, presidential-PR systems perform similarly well in both types of societies, although more diverse societies perform a little better than less diverse societies. This finding implies that a smaller number of veto players in Types 6 and 14 does not necessarily lead to a lower level of power sharing and, hence, a higher level of ethnic

Figure 7.5: The Propensity of Concentrated Groups for Conflict in Parliamentary-PR Systems (Type 1 vs. Type 5)

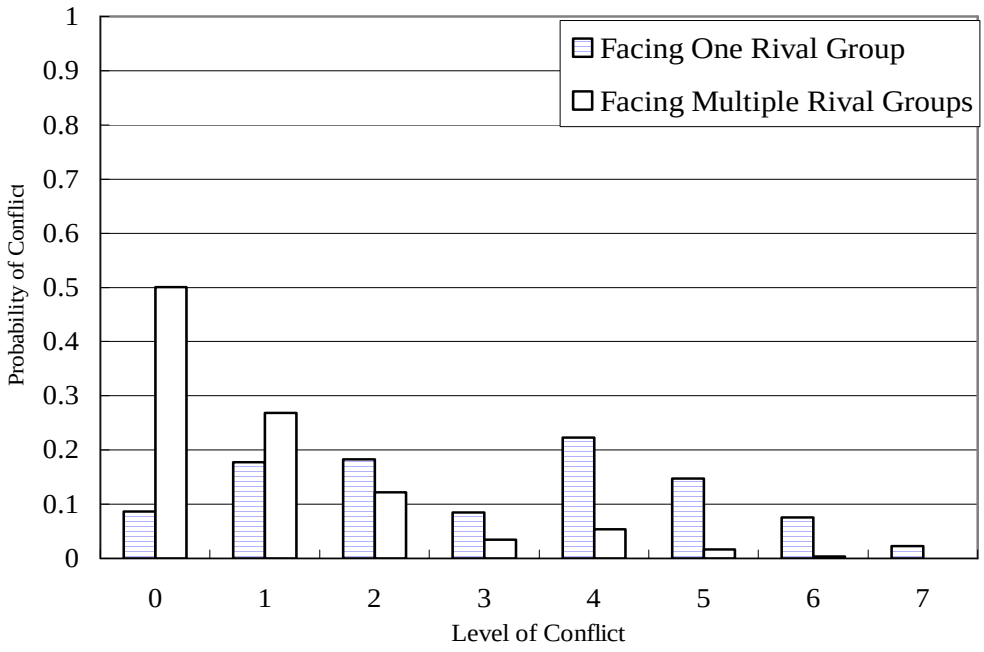


Figure 7.6: The Propensity of Dispersed Groups for Conflict in Parliamentary-PR Systems (Type 9 vs. Type 13)

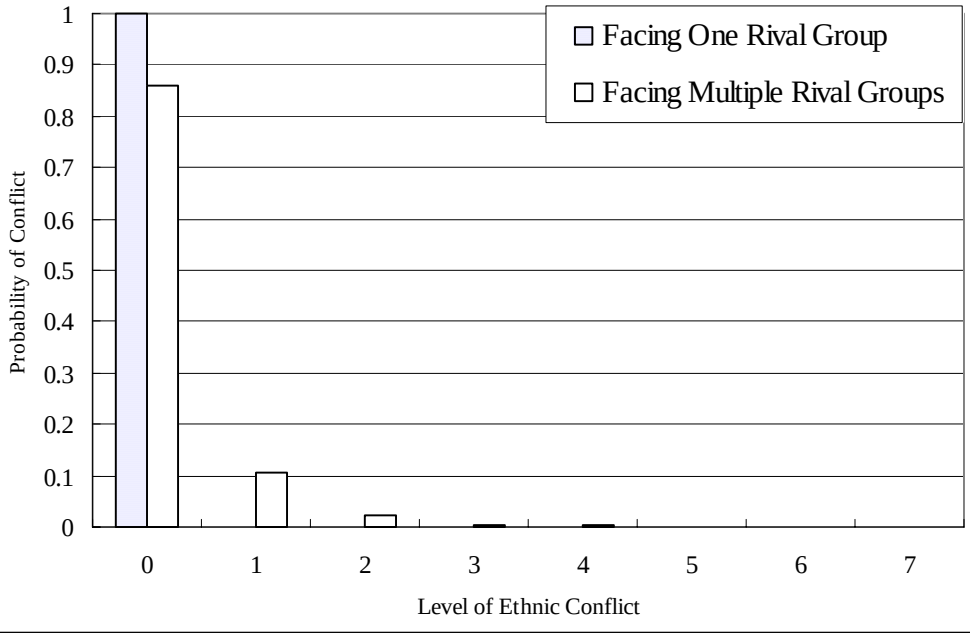


Figure 7.7: The Propensity of Concentrated Groups for Conflict in Non-Parliamentary-PR Systems (Type 2 vs. Type 6)

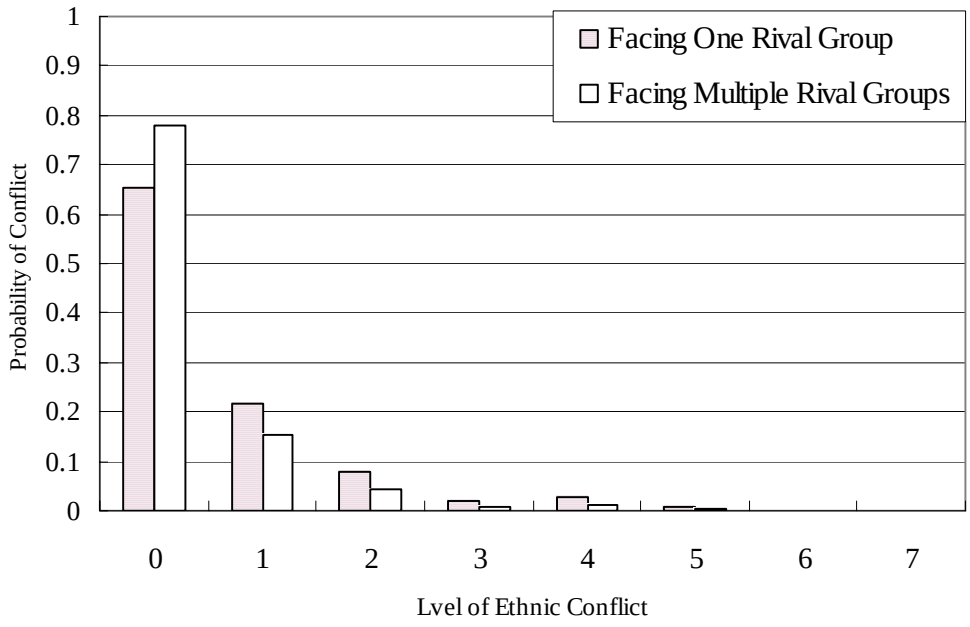


Figure 7.8: The Propensity of Dispersed Groups for Conflict in Non-Parliamentary-PR Systems (Type 10 vs. Type 14)

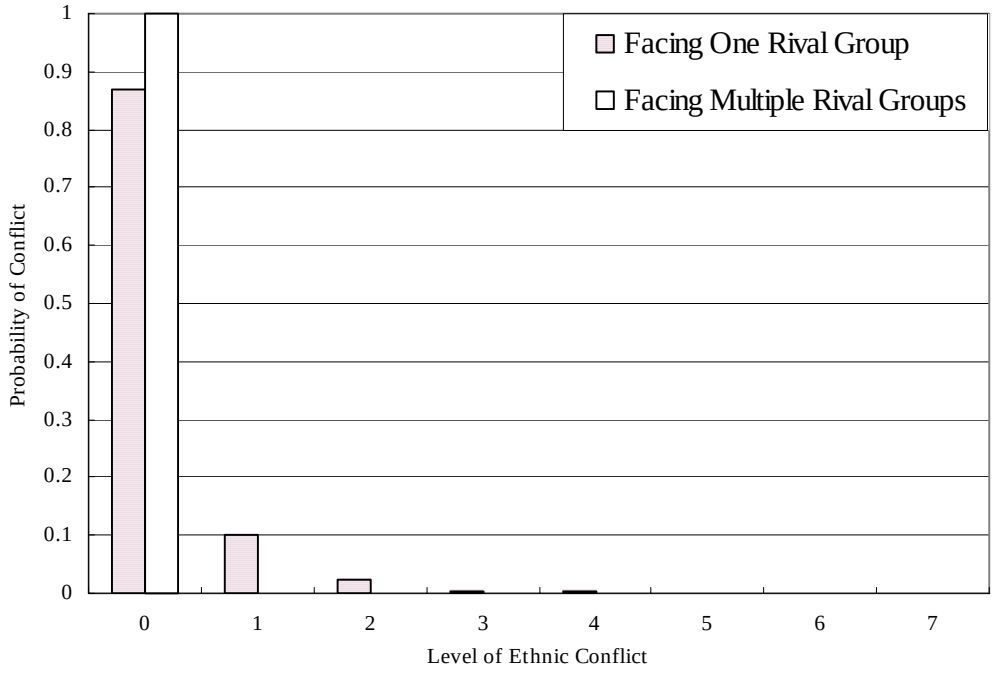


Table 7.9: Proportion Change of Rebellion and Marginal Effects of Ethnic Diversity in Cases Involving States with Parliamentary-SMD Systems

	S	χ^2
Concentrated Groups		
Multiple Ethnic Others (Type 3) vs. One Rival Group (Type 7)	-0.68	25.19***
Dispersed Groups		
Multiple Ethnic Others (Type 11) vs. One Rival Group (Type 15)	1.00	3.01*

Note: S is calculated by dividing Type 3 by Types 7 and 15, respectively, and then subtracting one from the result. ****p*<.01; ***p*<.05; **p*<.*10*; 2-tailed tests.

conflict.[147] It is also noteworthy that the between-effects and the hierarchical models of Chapter 6 provided no significant findings at the 95% confidence level about the effect of ethnic diversity in states with these presidential-PR systems.

Figures 7.7-8 based on the conditional probabilities of Table 7.4 provide graphical evidence of this conclusion.

7.3.3.3 States with Parliamentary-SMD Systems

Table 7.9 presents the S and χ^2 statistics for cases involving states with parliamentary-SMD systems. While previous analysis found no consistently significant difference between more diverse and less diverse societies in these cases, the S and χ^2 statistics suggest mixed findings concerning the effect of ethnic diversity. In cases involving concentrated groups, less diverse societies (Type 3) better prevent rebellion than more diverse societies (Type 7). In cses involving dispersed groups, the opposite is true. The probability differences for Pr(y=0) and for Pr (y>1) are 34% and 27%,

[147] According to Tsebelis (1995), the combination of presidential and multiparty systems results in a small number of veto players, compared to presidential-biparty systems. Arguably, semi-presidential and presidential systems should have similar numbers of veto players given that states with these government structures use the same electoral systems. Please refer to Chapter 3 for details. Among the states of Types 6 and 14, most, if not all, of them should have presidential-multiparty systems. Among the states of Types 2 and 10, most, if not all, of them should have presidential-biparty systems.

respectively, in cases involving concentrated groups. The two probability differences, which are also large, equal 17% and 6% in cases involving dispersed groups. It remains unclear why more diverse and less diverse states with parliamentary-SMD systems do not have a similar probability to experience every level of rebellion as my theory predicts. This is one of the very few examples which show that the ZIOP model does not provide supportive evidence for my theory. I will discuss possible reasons in the concluding chapter.

Figures 7.9-10 based on the conditional probabilities of Table 7.4 provide graphical display for these mixed findings.

7.3.3.4 States with Presidential-SMD Systems

Table 7.10 presents the S and χ^2 statistics for cases involving states with presidential-SMD systems. In accordance with my theory, heterogeneous states better prevent (severe) rebellion in these cases as shown in their 46% lower probability of experiencing intense rebellion (y>1). Figure 7.11 based on the conditional probabilities of Table 7.4 provide graphical evidence of this finding.

In sum, while the between-effects and hierarchical models confirm the effect of ethnic diversity only in states with presidential-SMD systems, the ZIOP model provides evidence of that effect in every political system save parliamentary-SMD systems. Furthermore, our general image of dispersed groups evaporates in the ZIOP estimates. When the ethnic nature of these groups' societies does not favor their power sharing in a specific political system, dispersed groups may fight violently against their regimes as well. Finally, the ZIOP model fails to find consistent impact of ethnic diversity in states with parliamentary-PR and parliamentary-SMD systems.

Figure 7.9: The Propensity of Concentrated Groups for Conflict in Parliamentary-Non-PR Systems (Type 3 vs. Type 7)

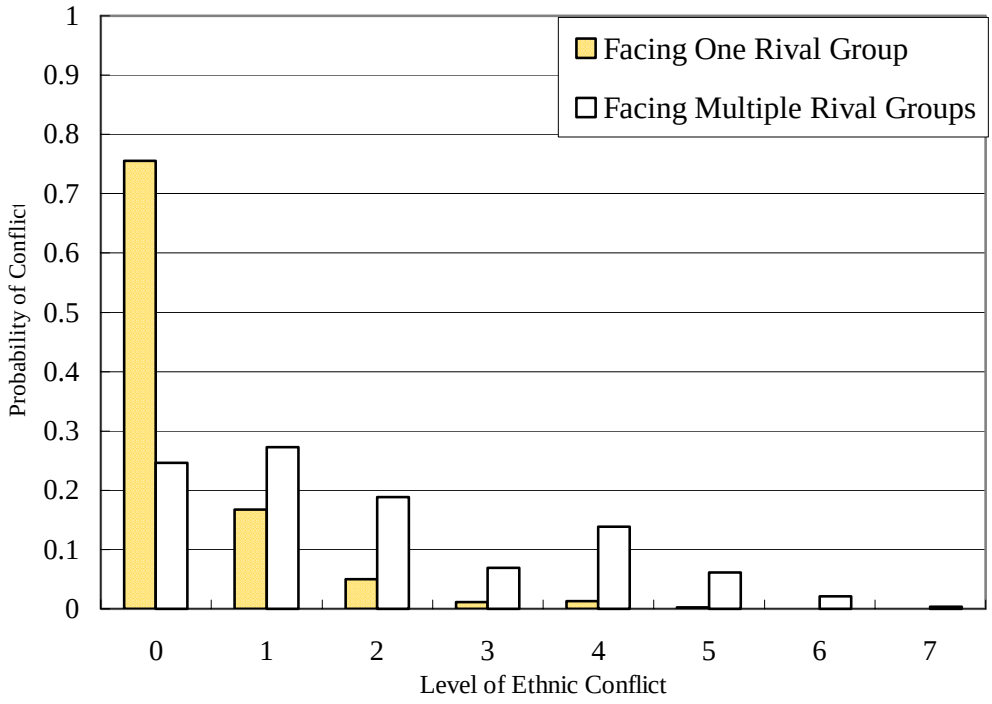


Figure 7.10: The Propensity of Dispersed Groups for Conflct in Parliamentary-Non-PR Systems (Type 11 vs. Type 15)

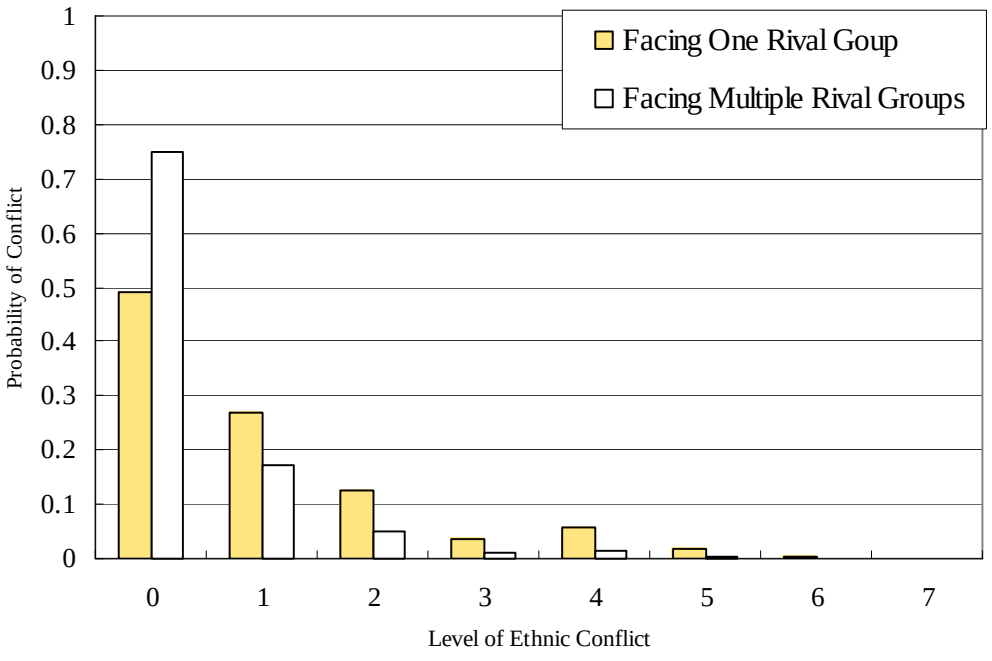
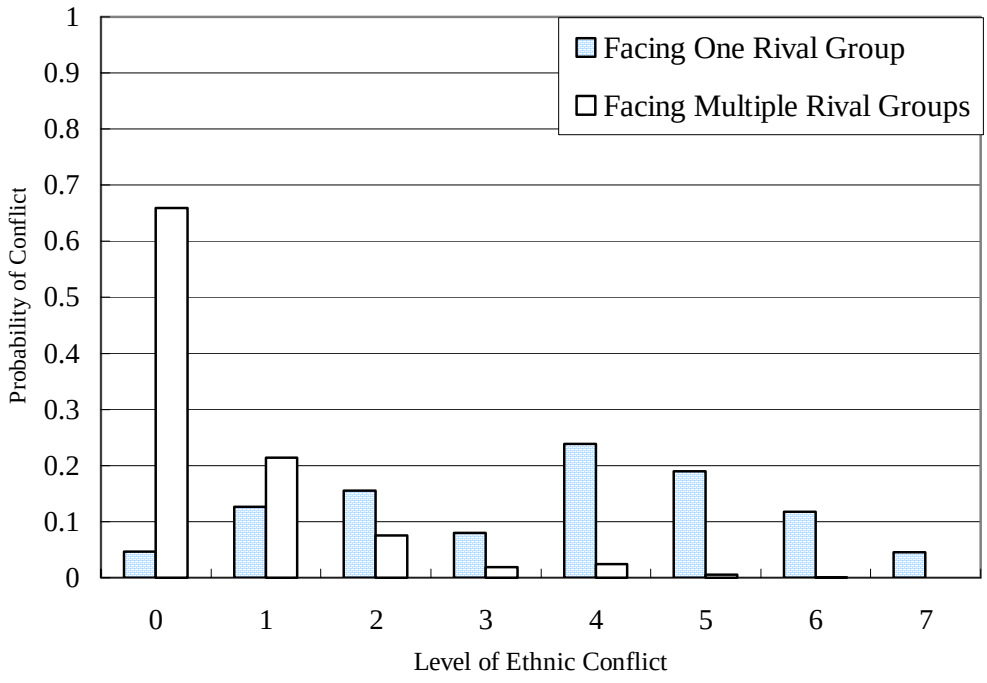


Table 7.10: Proportion Change of Rebellion and Marginal Effects of Ethnic Diversity in Cases Involving States with Presidential-SMD Systems

	S	χ^2
Concentrated Groups		
Multiple Ethnic Others (Type 8) vs. One Rival Group (Type 4)	-0.63	44.02***

Note: S is calculated by dividing Type 8 (a theoretically desirable ethnic context) by Type 4 (a theoretically undesirable ethnic context), and then subtracting one from the result. ****p*<.01; ***p*<.05; **p*<*.10*; 2-tailed tests.

Figure 7.11: The Propensity of Concentrated Groups for Conflict in Non-Parliamentary-Non-PR Systems (Type 4 vs. Type 8)



Why ethnic diversity in these states has opposite effects on dispersed and concentrated groups' engagement in rebellion warrants future research.

Table 7.11: Proportion Change of Rebellion and Marginal Effects of Ethnic Distributions

	S	χ^2
PAR-PR Systems		
Dispersed Groups Facing One Rival Group (Type 9)		
vs. Concentrated Groups Facing One Rival Group (Type 1)	NA	490.63***
Dispersed Groups Facing One Rival Group (Type 9)		
vs. Concentrated Groups Facing Multiple Ethnic Others (Type 5)	NA	266.15***
Dispersed Groups Facing Multiple Ethnic Others (Type 13)		
vs. Concentrated Groups Facing One Rival Group (Type 1)	-0.85	23.70***
Dispersed Groups Facing Multiple Ethnic Others (Type 13)		
vs. Concentrated Groups Facing Multiple Ethnic Others (Type 5)	-0.73	4.68**
PRE-PR Systems		
Dispersed Groups Facing One Rival Group (Type 0)	-0.61	6.84***
vs. Concentrated Groups Facing One Rival Group (Type 2)		
Dispersed Groups Facing One Rival Group (Type 10)		
vs. Concentrated Groups Facing Multiple Ethnic Others (Type 6)	-0.40	1.53
Dispersed Groups Facing Multiple Ethnic Others (Type 14)		
vs. Concentrated Groups Facing One Rival Group (Type 2)	NA	270.47***
Dispersed Groups Facing Multiple Ethnic Others (Type 14)		
vs. Concentrated Groups Facing Multiple Ethnic Others (Type 6)	NA	222.09***
PAR-SMD Systems		
Dispersed Groups Facing One Rival Group (Type 11)		
vs. Concentrated Groups Facing One Rival Group (Type 3)	1.13	5.26**
Dispersed Groups Facing One Rival Group (Type 11)		
vs. Concentrated Groups Facing Multiple Ethnic Others (Type 7)	-0.32	5.47**
Dispersed Groups Facing Multiple Ethnic Others (Type 15)		
vs. Concentrated Groups Facing One Rival Group (Type 3)	0.06	0.00
Dispersed Groups Facing Multiple Ethnic Others (Type 15)		
vs. Concentrated Groups Facing Multiple Ethnic Others (Type 7)	-0.66	25.72***
PRE-SMD Systems		
Dispersed Groups Facing One Rival Group (Type 12)		
vs. Concentrated Groups Facing One Rival Group (Type 4)	-0.84	59.52***
Dispersed Groups Facing One Rival Group (Type 12)		
vs. Concentrated Groups Facing Multiple Ethnic Others (Type 8)	-0.57	1.93

Note: S is calculated in the same way as aforementioned. ***p<.01; **p<.05; *p<.*10*; 2-tailed tests.

7.3.4 Ethnic Spatial Distributions

As Table 7.11 shows, with a few exceptions,[148] controlling for institutional configurations of government structures and electoral systems and regardless of the number of ethnic others, concentrated groups have been confirmed to have significantly higher probabilities to engage in rebellion and fight more severely than dispersed groups. For example, according to Table 7.4, in cases involving parliamentary-PR systems, concentrated groups facing one rival group (Type 1) are associated with a 91% higher probability of acting as ethnic combatants than their dispersed counterparts (Type 9), once their conflict behavior is recorded. Similar patterns can be found in almost all the other controlled comparisons. Table 7.11 thus provides strong evidence for my hypotheses about the effect of ethnic distributions. Only a few controlled comparisons were significant in the previous analysis of Chapter 6.

Figures 7.12-15 based on the conditional probabilities of Table 7.4 provide graphical evidence of ethnic distributions' effects.

[148] Among these unexpected findings, only one is statistically significant, i.e. the difference between Type 3 and Type 11. It remains unclear why in cases involving ethnic groups facing one rival group and living in states with parliamentary-SMD systems, dispersed groups fight against their regimes more severely than concentrated groups.

Figure 7.12: The Propensity of Ethnic Groups for Conflict
in Parliamentary-PR Systems

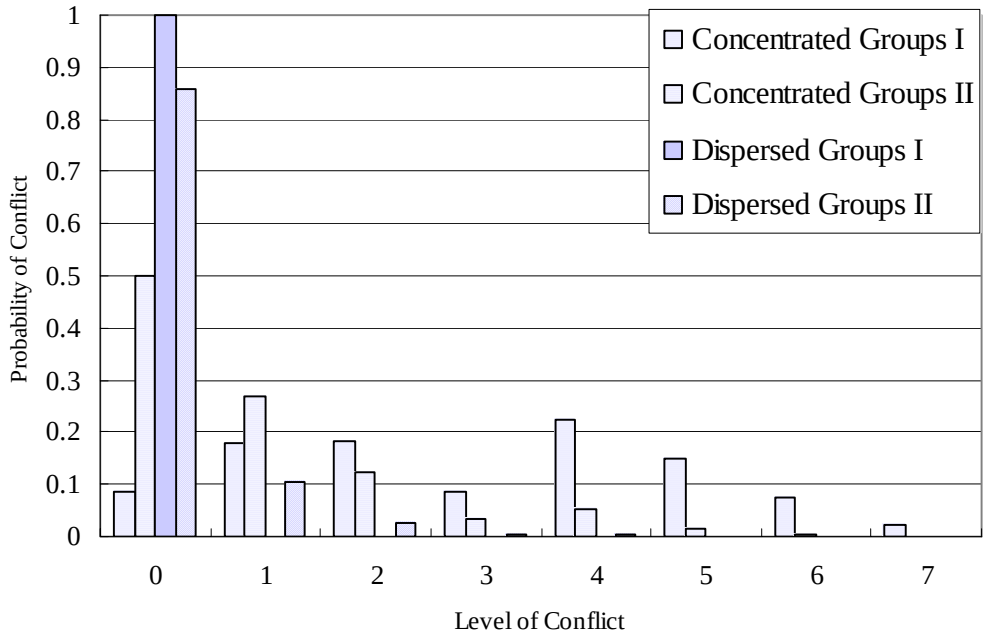


Figure 7.13: The Propensity of Ethnic Groups for Conflict
in Non-Parliamentary-PR Systems

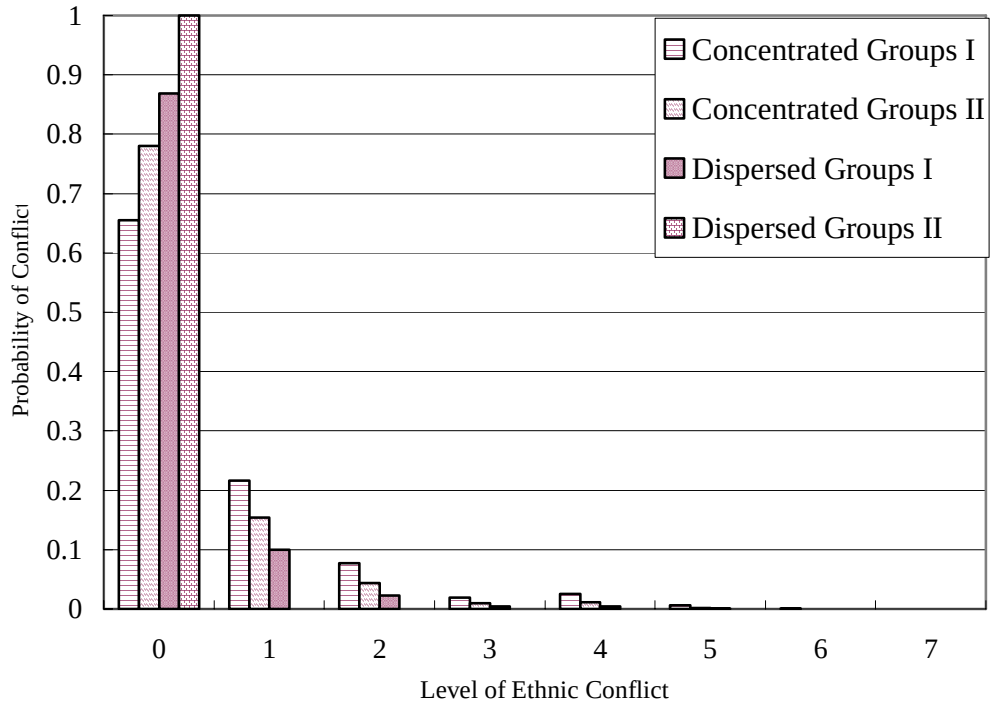


Figure 7.14: The Propensity of Ethnic Groups for Conflict
in Parliamentary-Non-PR Systems

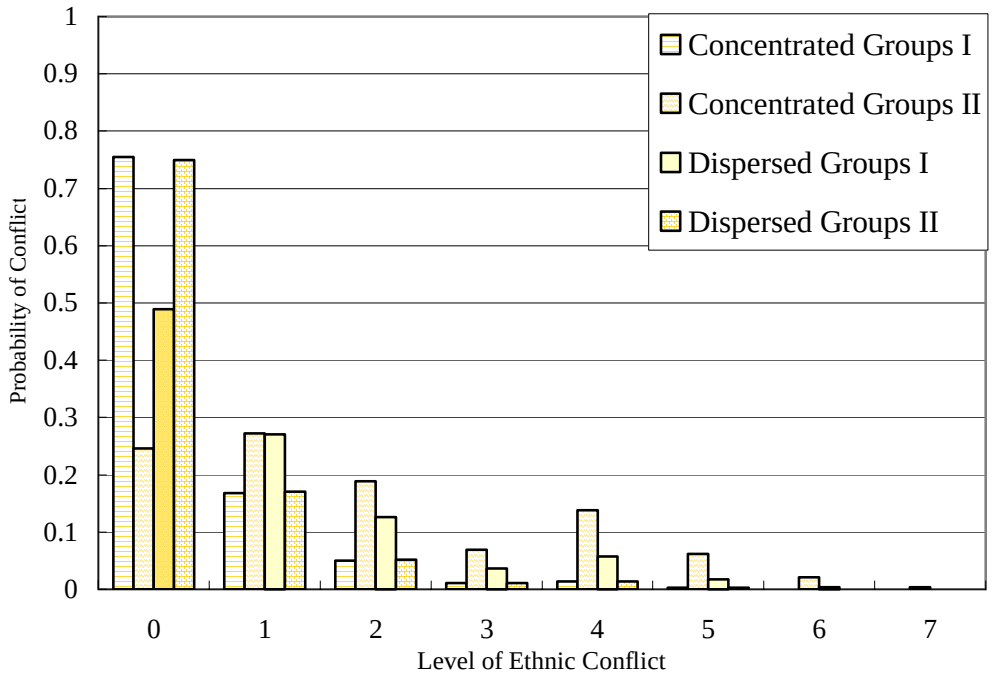
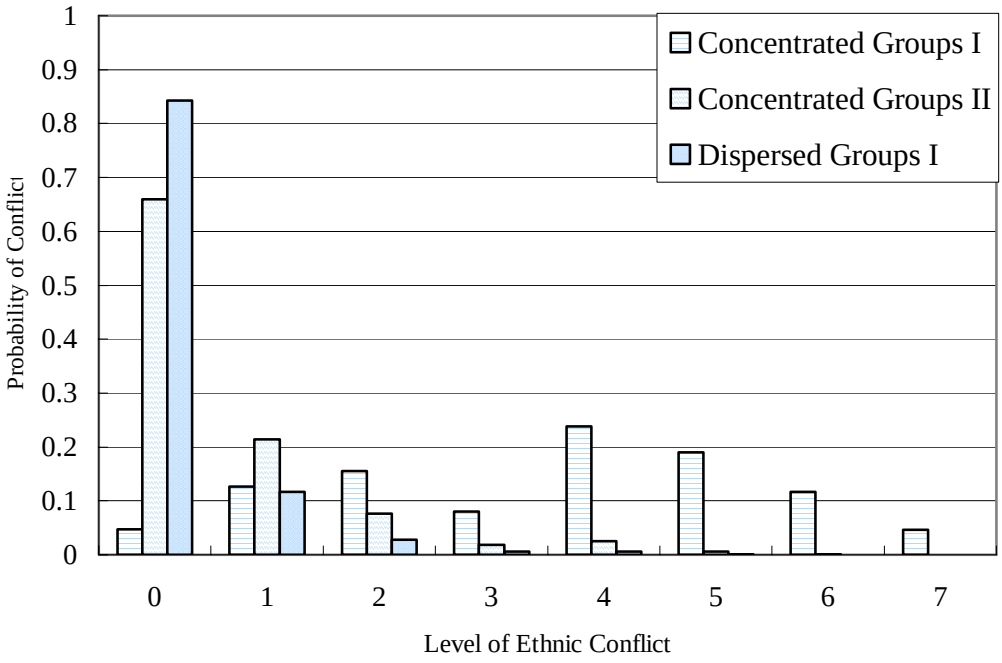


Figure 7.15: The Propensity of Ethnic Groups for Conflict
in Non-Parliamentary-Non-PR Systems



Chapter 8: Conclusion

"The choice between presidential and parliamentary systems is an easy one from the consociational point of view: parliamentary government is clearly superior" (Lijphart 2002: 49-50). This statement of Lijphart is both provocative and bold given that there have been no convincing, generalizable analyses which confirm the advantages of parliamentary systems over presidential systems in preventing the occurrence and escalation of ethnic conflict.[149]

Instead of arguing for a one-size-fits-all solution to widespread ethnic tensions and conflicts across the world, this dissertation claims that appropriate institutional solutions are ultimately contextual and rest on the nuances of the number and spatial distributions of ethnic groups in a country. The effects of these contextual factors on ethnic clashes should also bear on the choice of political systems.

This concluding chapter contains four sections. The first summarizes the main elements of my theories regarding how political systems and ethnic contexts affect ethnic conflict. The second section highlights the main findings of the zero-inflated ordered probit model and the methodological contributions of this dissertation. The third section discusses my theories' key theoretical and policy implications. I conclude this chapter with the final section on the limitations of this study and suggestions for future work.

8.1 The Theories of this Dissertation

My theories about the link between political systems and ethnic diversity on the one hand and ethnic conflict against states on the other hand started with a simple point.

[149] Please refer to Chapter 2 for details.

Assuming–for the purpose of theory building—that ethnic minorities compete for more control of the government in order to better secure their identity, interests, and rights,[150] how likely these groups are to influence policy-making determines whether and how severely they engage in conflict. The best preventive institutional configurations are therefore those that maximize such probabilities in a specific ethnic context. Whether states with multiple or with two groups experience more conflicts and more severe clashes is also determined by whether minority groups of these societies have been largely prevented from having influence in policy-making in a specific institutional arrangement. States with more than two groups and only two groups have been called "more diverse countries" and "less diverse countries", respectively, in this dissertation. I first briefly expand on the links between political systems, ethnic diversity, and ethnic conflict, before summarizing how ethnic distributions affect ethnic strife in the end of this section.

Different institutions are required in different ethnic contexts. For spatially concentrated minorities facing only one rival group in a state, presidential-PR systems should be more desirable than most of the other systems. The parliamentary element of this institutional configuration better prohibits one group from gaining total control of power without any checks and balances. The PR component of this institutional combination better guarantees a concentrated minority group higher proportionality of votes to seats.

For concentrated groups facing multiple ethnic others, parliamentary-PR and presidential-SMD systems constitute preferable institutional frameworks.

[150] A government is arguably the greatest potential threat to any group in a state. Please refer to Chapter 3 for details.

Parliamentary-PR and presidential-SMD systems better maximize these groups' policy influence by promoting more power sharing and by encouraging checks and balances between these groups, respectively. These merits of parliamentary-PR and presidential-SMD systems become clearer when discussing the disadvantages of parliamentary-SMD and presidential-PR systems. Compared to parliamentary-PR systems, parliamentary-SMD systems are undesirable because these systems tend to favor only a few groups who join coalition cabinets at the expense of many others who do not in states with multiple ethnic groups. This tendency exists because fewer groups will have representatives in a parliament due to the use of SMD systems, and fewer parties will be needed for the formation and survival of a coalition cabinet. Consequently, fewer groups share power and feel secure in parliamentary-SMD systems. Presidential-PR systems are not preferable, either, when compared to presidential-SMD systems. Although PR systems ensure for concentrated groups fairer shares of seats, these systmes tend to promote a fragmented parliament in the presence of multiple ethnic groups. This type of parliament may cause a problem when presidential systems are in use. In these government structures, ambitious presidents or semipresidents would become dominant when they face such a weak, fragmented parliament. All the concentrated groups save presidents' concentrated coethnics feel powerless and insecure and, hence, are more likely to engage in more intense ethnic conflict.

In contrast to concentrated groups, dispersed groups are essentially more peaceful and have lower capabilities to fight for power. For these groups, institutions should be relatively irrelevant. However, it is likely that institutions still play a role, however weaker it is, in making some dispersed groups become even more peaceful than other dispersed groups. If so, what woks best for the interests of concentrated groups should

works best for the needs of dispersed groups, holding the number of ethnic groups in a state and other relevant variables constant. In sum, there are two likely scenarios in cases involving dispersed groups. One is that institutions do not matter. The other is that what better prevents or mitigates concentrated groups' ethnic conflict also better reduces dispersed groups' propensity to fight against states.

Different levels of ethnic diversity are preferable in different political systems as well. Ethnic groups living in states with parliamentary-PR systems will have a larger probability to influence policy if they face more than one rival group. The presence of multiple ethnic groups in states using parliamentary-PR systems fosters the formation of coalition cabinets. For the members of a coalition, they share both executive and legislative power. For those outside coalition cabinets, they also find it easier to threaten the survival of these coalition cabinets and, hence, easier to compete for more rights and benefits. Conversely, living in states with only one rival group and with these parliamentary-PR systems, ethnic minorities have a smaller probability to influence policy because dominant rival groups are more capable of forming a stable one-party majority cabinet in these institutional and ethnic contexts.

In cases involving ethnic groups living in states with presidential-PR systems, more diverse societies have disadvantages. PR systems tend to operate in favor of the formation of fragmented parliaments when there are multiple ethnic groups. Facing fragmented parliaments, ambitious presidents or semi-presidents find it very easy to dominate all the ethnic others as aforementioned. When presidential-PR systems are in use, ethnic minorities are therefore more likely to feel powerless and insecure in states with multiple ethnic groups than in states with only two groups.

Parliamentary-SMD systems tend to favor groups who form or join cabinets at the

expense of those who do not. This tendency exists in both types of states. Only one ethnic group is needed for the formation and survival of a single-party-majority cabinet when parliamentary-SMD systems are used in states with two major groups. Only a few more ethnic groups are required for the same purpose of a majority coalition cabinet when states with more than two groups employ these political systems. Consequently, in both types of societies, ethnic groups excluded from cabinets are less likely to threaten the survival of ruling alliances. In both societies, these groups are largely prevented from having policy influence, so they feel similarly insecure, and have a comparable probability to engage in (severe) ethnic strife.

Presidential-SMD systems used in states with more than two ethnic groups almost always produce divided governments because no single ethnic groups are likely to control a majority of seats in a parliament. Divided governments better ensure checks and balances between more, if not all, ethnic groups in such states. Conversely, when presidential-SMD systems are employed in states with only two major groups, the occurrence of divided governments is less frequent, and the exclusive control of power by the coethnic of a president is more likely. When presidential-SMD systems are in use, ethnic minorities are therefore more likely to rebel and to severely clash with states in less diverse societies than in more diverse societies.

Ethnic diversity should have similar impact on dispersed and concentrated groups' engagement in rebellion, although this impact may be too weak to be significant in cases involving dispersed groups. Dispersed groups may be so peace-prone that they will not fight against states even when the ethnic fractionalization levels of their societies do not promote their policy influence in a specific political system.

In sum, concentrated groups differ from dispersed groups in the extent to which they

react to their institutional and ethnic conditions. Concentrated groups become less combative when they have more say in policy-making while dispersed groups tend to coexist with ethnic others peacefully regardless of whether they live in more empowering societies. To investigate the impact of ethnic groups' spatial distributions on ethnic conflict thus requires controlling for the effects of political systems. Ethnic diversity does not matter in this investigation, and one example explains why. When parliamentary-PR systems are used, concentrated groups are likely to be associated with a higher probability of violent conflict than dispersed groups. This likelihood remains unchanged even when these concentrated and dispersed groups live in more diverse and less diverse countries, respectively. More diverse countries better promote ethnic power sharing than less diverse countries when parliamentary-PR systems are used, as aforementioned. An uneven distribution of power between dominant and minority groups is more likely to persist in both types of societies, however. Given this condition, capable concentrated groups living in more empowering countries are still more likely to fight for fairer treatments than less capable dispersed groups living in less empowering countries. In sum, given a certain political system, capable concentrated groups are more likely to rebel and intensely clash with states than dispersed groups regardless of how many ethnic others these groups face.

The dependent variables of this dissertation include nonviolent ethnic protest and violent ethnic rebellion. Nonviolent protest serves as a major means people need and use to make their voice heard in a democracy. A democracy also requires constant input from its society to sustain its functioning and survival, so most democracies protect individuals' right to legally and nonviolently protest. These merits and features of protest offset or even eliminate the distinctions between political systems and between ethnic

contexts in terms of their effects. Political systems and ethnic contexts should therefore have stronger impact on rebellion than on protest.

8.2 Data Analysis and Methodological Contributions

These theories were subjected to three statistical tests. The between-effects model was used as a better technique—compared to the Beck and Katz approach—due to the presence of unit roots and serial autocorrelation problems in my dataset.[151] The hierarchical model was employed to test whether controlling for multiple random factors changes the conclusions that the between-effects model provide. I also performed a recently developed zero-inflated ordered probit (ZIOP) model with robust standard errors to deal with the excess zeros of my rebellion variable which is essentially ordered data.[152] My theories received strong support, especially when looking at the ZIOP estimates.

In this section, I summarize the main findings of the ZIOP model which is the best model for the data structure of my rebellion variable,[153] and then discuss the methodological contributions of this dissertation. Before doing so, it should be noted that the institutional and ethnic variables of interest have been proved to have expected but weaker or even no effects on protest in Chapters 5-6. These findings suggest two things. First, ethnic conflicts, be it violent or nonviolent, require the same preventive institutional arrangements. Second, because the variables of interest have similar but stronger effects on rebellion, it is desirable to highlight only the test results about rebellion in this

[151] Please refer to Chapter 4 for details. I argued in Chapter 3 that while relatively stable institutions may not explain such fluctuating phenomenon as protest within a polity, institutions can explain the average cross-sectional differences. Performing a between-effects model to investigate the institutional sources of protest is thus desirable from this theoretical point of view.

[152] Protest should also be regarded as an ordinal scale variable although many scholars consider the data an interval scale one. Whether performing an ordered probit model on the protest data will change the conclusion about the link between the variables of interest and protest warrants future research.

[153] Please refer to Chapter 7 for details.

concluding chapter.

To test my theories, in addition to the key explanatory variables, I control for eight variables, including federal systems, regime duration, first election, log GDP per capita, change in GDP per capita, and three indices of political, economic, and cultural differentials. Overall, the tests confirmed the expected links between political systems, ethnic diversity, and ethnic distributions on the one hand, and ethnic rebellion on the other hand. I briefly summarize these findings in turn.

Presidential-PR systems predicted a smallest probability of ethnic conflict and severe violence in states with two major ethnic groups. More often than not, these political systems better met the needs of both concentrated and dispersed groups compared to any other political systems in less diverse states. When presidential-PR systems worked only for the interests of concentrated or dispersed groups, the performance of other political systems which better met the needs of groups with different settlement patterns did not differ substantially from that of presidential-PR systems. Presidential-PR systems thus constituted the best institutional choice for states with two major ethnic groups.

Parliamentary-SMD systems forecasted a larger probability of ethnic rebellions and severe clashes in states with more than two ethnic groups. These political systems largely prevented both concentrated and dispersed groups from having policy influence in more diverse states. Furthermore, presidential-PR systems performed unexpectedly well because such systems were employed together with presidential electoral systems which constrained their presidents' incentives to take care of only the needs of their coethnics.[154] These findings suggested that the only political systems that states with more than two

[154] Please refer to Chapter 5 for details.

ethnic groups need to avoid are parliamentary-SMD systems.

Two hypotheses about ethnic diversity were also confirmed. Concentrated groups living in states with parliamentary-PR and presidential-SMD systems had a smaller probability to rebel if these groups faced more than one rival group. Dispersed groups living in states with parliamentary-PR systems had a slightly lower probability to engage in rebellion if such groups face only one rival group, however.[155] While ethnic diversity in states using parliamentary-PR systems had opposite effects on dispersed and concentrated groups' propensities to engage in rebellion, the effect was much stronger in cases involving concentrated groups. This distinction implied that when parliamentary-PR systems were used, states with multiple groups are less likely to experience rebellions and severe clashes than states with two groups. This implication holds unless dispersed groups extremely outnumbered concentrated groups in states with multiple groups.

There are two unexpected findings. First, more diverse states were associated with a slightly lower probability to experience rebellion than less diverse states when presidential-PR systems were in use. The aforementioned merit of the presidential electoral systems used in more diverse states with presidential-PR systems helps explain this unexpected finding.

Second, when parliamentary-SMD systems were adopted, concentrated groups in more diverse and less diverse states did not have a similar likelihood to experience rebellions and heavy clashes as my theory predicts.[156] This unanticipated finding should

[155] In my dataset, there are no observations of dispersed groups living in states with multiple ethnic groups and with presidential-SMD systems. The effect of ethnic diversity on dispersed groups' propensity to engage in rebellion thus cannot be tested in such states

[156] Given these political systems, dispersed groups in more diverse and less diverse states had a similar likelihood to experience rebellions and heavy clashes at the 95% confidence level.

be explained by the nuance of these societies' ethnic fractionalization levels. In this dissertation, I divided societies into two types: states with more than two ethnic groups (i.e. more diverse states) and states with only two groups (i.e. less diverse states). States with only two groups can be further divided into highly homogenous and relatively less homogenous states. Less diverse states with parliamentary-SMD systems in my dataset were closer to highly homogenous states on average.[157] Minority groups tended to be so small in these states that every political system meant the same to them. Put differently, these groups were less likely to win elections no matter which political systems were employed. It was thus not surprising to find that when parliamentary-SMD systems were adopted, concentrated groups in less diverse states had a smaller likelihood to experience rebellions and heavy clashes. Whether this notion stands up to statistical testing warrants future research.

The hypothesis, that concentrated groups were more likely to rebel against states than dispersed groups in every political system, also received strong evidence from ten out of the fourteen controlled comparisons.[158] Only three paired comparisons provided insignificant results while the remaining one provided a significant yet unexpected finding. In states with parliamentary-SMD systems and with only two ethnic groups, concentrated groups were less likely to engage in rebellion than dispersed groups. What reason explains this unexpected finding also warrants future research.

In sum, the data analysis of this dissertation has largely confirmed my theories, although there were a few unexpected findings. The data analysis of this dissertation has made several methodological contributions. First, large-N, quantitative analysis is

[157] Less diverse states with all the other political systems were closer to relatively less homogenous states on average.
[158] Please refer to Table 7.11 for the test results.

desirable given that in a regression context, the small number of observations in some types of societies will not constitute a particular concern.[159] Only a few past studies used this type of analysis to investigate the relations between political systems, ethnic contexts, and ethnic conflict, however. This dissertation not only contributes to this literature, but also takes the problems associated with time-series cross-section analysis more seriously than past studies. This dissertation hence better avoids obtaining spurious and biased relations between variables of interest. Second, this dissertation specifies an interactive model to test the interactive hypotheses of this dissertation. Many existing studies wrongly used additive models or an arbitrarily constructed composite variable to test their interactive hypotheses. This dissertation thus better unravels the true effects of political systems. Third, this dissertation is the first and the only research that uses and introduces the zero-inflated ordered probit model to the discipline. Given that many political variables are ordinal scale variables and have excess zero observations, this introduction is important and desirable. The use of the ZIOP model in this dissertation also better ensures unbiased estimates.

8.3 Theoretical and Policy Implications

The theories and findings of this dissertation have a number of important theoretical implications. First, political systems contribute to a complementary understanding about the multi-faceted phenomena of ethnic violence. While economic (such as log GDP per capita and economic differentials), ethnic (such as cultural differentials and ethnic diversity), and territorial factors (such as spatial distributions of ethnic groups) have significant impact on ethnic conflict, political systems also matter.

[159] Please refer to Appendix C for the number of observations in each type of society (i.e. Types 1-15).

Second, the synthetic approach of this dissertation better unravels the true effects of political systems, ethnic diversity, and ethnic distributions. Past studies failed to find significant effects of government structures and ethnic diversity because they ignored the important interactions between these factors. Furthermore, spatially concentrated groups save urbanites are not predestined to be more combative, as the theory of indivisible territory suggests (Toft 2003). Political systems have been confirmed to affect whether concentrated groups have an incentive to fight against their regimes. Elites of concentrated groups may be capable, and yet unwilling to play the ethnic card when institutions guarantee them a reasonable share of power. Masses of these groups feel more empowered and become more willing to trust and coexist peacefully with other ethnic groups when appropriate institutions are in use.

Third, the interactive effects of government structures and electoral systems have been seriously overlooked to the extent that the importance of government structures has been widely and mistakenly forgotten or questioned.[160] This neglect and doubt about government structures' importance is not new. Ever since Weaver and Rockman published their edited book: *Do Institutions Matter? Government Capabilities in the United States and Abroad* in 1993, many scholars have had reservations about the effects of government structures. Compared to the burgeoning studies of electoral systems, research on government structures has been stagnating. This stagnation is unfortunate and unwarranted. Only when taking electoral systems and other contextual factors seriously can the effects of government structures be correctly evaluated. Otherwise, any denial of the impact of government structures is theoretically groundless and substantively

[160] Depending on research questions, the interactive effects in question may involve the impact of other variables, such as the contextual factors of this dissertation.

dangerous. Using wrong government structures may lead to undesirable political outcomes, such as more severe violent conflict, greater political instability, or even a higher likelihood of democratic breakdown.

Fourth, a smaller number of veto players in states with presidential-PR systems and with multiple ethnic groups do not necessarily lead to a lower level of power sharing. The interactive models I use in this dissertation better detect this fact than a veto player model. This finding implies the inadequacy of using a composite variable, such as the number of veto players, to test the interactive effects of the political and ethnic variables of this dissertation. This finding may also give pause to researchers using the veto player model.

This dissertation also has a number of critical policy implications. First, parliamentary-PR systems do not serve as the one-size-fits-all solutions to ethnic conflict as many scholars and constitution designers believe. Instead, different ethnic societies require different preventive political systems. According to the estimates of the ZIOP model, when parliamentary-PR systems are desirable, they outperform only parliamentary-SMD systems. Blindly using parliamentary-PR systems will only lead to disastrous ethnic relations. This dissertation helps provides a set of solutions that fit the needs of specific divided societies.

Second, dispersed groups tend to be more peace-prone than concentrated groups in every political system. This tendency implies that ethnically divided societies can design institutions based more on the needs of concentrated ethnic groups. Furthermore, institutions generally have similar but stronger effects on violent than on nonviolent ethnic conflicts. This finding suggests that ethnic conflicts, be it violent or nonviolent, require the same preventive institutional arrangements. This implication provides good news to institutional designers whose countries have suffered from both types of ethnic

conflict. In sum, these findings reduce the burden of institutional designers since institutional engineers do not need to worry about different groups' preferences and solutions to different types of ethnic conflict.

Third, as the results of this dissertation show, ethnic diversity does hurt democracy if using ethnic conflict as an indicator of democratic instability. Since ethnic fractionalization levels change very slowly over time, the best and probably the only way to mitigate the harmful effect of ethnic diversity is to use political systems that allow ethnic groups a great deal of power sharing given a certain level of ethnic diversity.

Fourth, economic decline and ethnic tensions may coexist in a state. Since these problems require different institutional prescriptions as this dissertation and Bernhard et al. (2001) jointly suggest, societies facing both challenges are less likely to consolidate their democracies. Knowing this gloomy consequence, international societies should work together to promote the economic development of these states in a quandary by providing subsidies, grants, low interest loans, or other financial support. This financial assistance would help such trapped societies escape from their difficult choice between different institutional solutions to their socioeconomic problems, and concentrate on promoting their inter-group peace.

8.4 Avenues for Future Research

While this dissertation has a number of methodological contributions, future research should incorporate case studies to investigate causation or what explain the correlation between the proposed variable and the probability of violent conflict. Furthermore, while scholars regularly exclude non-democratic states in order to explore the impact of political systems, non-democratic states usually experience more severe

ethnic conflict than democratic states. Future work should explore how to deal with these more difficult cases. Moreover, the indices of ethnic fractionalization I used in this dissertation probably suffer from the same potential mismatch between the measure and the mechanism of behavior that researchers usually use these indices to investigate. Specifically, all the authors of these indices, including Fearon who encode *socially* relevant ethnic groups, over-count *politically* irrelevant groups as ethnic. This flaw is insurmountable so far given that there is still no better index of ethnic diversity. Future studies should use more appropriate data when that is available. Last but not least, I have treated ethnic diversity as a dichotomous variable because of the purpose of this dissertation. Ethnic diversity is essentially a continuous variable, however. Future work can investigate its effect by regarding it as a continuous variable or by dividing this variable into more categories.

Appendix A: Descriptive Statistics of Variables

Variables	N	Mean	Standard Deviation	Min.	Max.
Rebellion	2074	0.67	1.49	0	7
Protest	2079	1.74	1.37	0	6
PAR	2095	0.45	0.50	0	1
PR	2095	0.53	0.50	0	1
Con	2095	0.66	0.47	0	1
Frac (Alesina)	2095	0.33	0.47	0	1
Frac (Fearon)	2095	0.29	0.45	0	1
Frac (Annett)	2095	0.39	0.49	0	1
PAR * PR	2095	0.18	0.38	0	1
PAR * Frac (Alesina)	2095	0.21	0.41	0	1
PAR * Frac (Fearon)	2095	0.14	0.35	0	1
PAR * Frac (Annett)	2095	0.21	0.41	0	1
PAR * Con	2095	0.25	0.43	0	1
PR * Frac (Alesina)	2095	0.15	0.36	0	1
PR * Frac (Fearon)	2095	0.16	0.37	0	1
PR * Frac (Annett)	2095	0.19	0.40	0	1
PR * Con	2095	0.36	0.48	0	1
Frac * Con (Alesina)	2095	0.26	0.44	0	1
Frac * Con (Fearon)	2095	0.24	0.43	0	1
Frac * Con (Annett)	2095	0.31	0.46	0	1
PAR * PR* Frac (Alesina)	2095	0.06	0.23	0	1
PAR * PR* Frac (Fearon)	2095	0.04	0.20	0	1
PAR * PR* Frac (Annett)	2095	0.06	0.23	0	1
PAR * PR *Con	2095	0.10	0.30	0	1
PAR * Frac * Con (Alesina)	2095	0.14	0.35	0	1
PAR * Frac * Con (Fearon)	2095	0.11	0.31	0	1
PAR * Frac * Con (Annett)	2095	0.14	0.35	0	1
PR * Frac * Con (Alesina)	2095	0.12	0.32	0	1
PR * Frac * Con (Fearon)	2095	0.13	0.33	0	1
PR * Frac * Con (Annett)	2095	0.16	0.36	0	1
PAR * PR * Frac * Con (Annett)	2095	0.03	0.17	0	1
Federal system	2095	0.34	0.47	0	1

Enduring regime	2095	32.01	45.22	0	194
First election	2095	0.05	0.22	0	1
Variables	N	Mean	Standard Deviation	Min.	Max.
Log GDP per capita	2095	7.97	1.46	5.06	10.54
Change in GDP per capita	2095	0.02	0.04	-0.38	0.21
Political differentials	2078	1.57	1.46	-2	4
Economic differentials	2056	2.28	1.83	-2	4
Cultural differentials	2092	2.99	1.05	0	4

Note: Min., Max., PAR, PR, Con, and Frac stand for minimum, maximum, parliamentary systems, proportional representation systems, group concentration, and ethnic fractionalization, respectively.

Appendix B: Ethnic Groups in States with Specific Institutions

Concentrated Groups Facing One Rival Group

Type 1: PAR-PR	Type 2: PRE-PR
Greeks in Albania (2002-2003)	*Indigenous Peoples in Argentina (1985-2003)*
Slovaks in Czech Republic (1993-2003)	*Afro-Brazilians in Brazil (1985-2003)*
Russians in Estonia (1991-2003)	*Amazonian Indians in Brazil (1985-2003)*
Muslims in Greece (1985-2003)	*Turks in Bulgaria (1991-2003)*
Arabs in Israel (1985-91; 2001-03)	*Afro-Americans in Colombia (1985-2003)*
Palestinians in Israel (1985-91; 2001-03)	*Indigenous Peoples in Colombia (1985-2003)*
Sardinians in Italy (1985-1992)	*Antillean Blacks in Costa Rica (1985-2003)*
South Tyroleans in Italy (1985-1992)	*Serbs in Croatia (2000-2003)*
Gagauz in Moldova (2000-2003)	*Afro-Americans in Dominican Republic (1985-2003)*
Slavs in Moldova (2000-2003)	*Indigenous Peoples in El Salvador (1985-2003)*
Hungarians in Slovakia (1993-1998)	*Basques in France (1986-1987)*
Basques in Spain (1985-2003)	*Corsicans in France (1986-1987)*
Catalans in Spain (1985-2003)	*Indigenous Peoples in Guatemala (1996-2003)*
Kurds in Turkey (1985-2003)	*Black Karibs in Honduras (1989-2003)*
	Indigenous Peoples in Honduras (1989-2003)
	Arabs in Israel (1992-2000)
	Palestinians in Israel (1992-2000)
	Albanians in Macedonia (2001-2003)
	Roma in Macedonia (2001-2003)
	Serbs in Macedonia (2001-2003)
	Gagauz in Moldova (1993-1999)
	Slavs in Moldova (1993-1999)
	Indigenous Peoples in Nicaragua (1990-2003)
	Indigenous Peoples in Panama (1989-2003)
	Hungarians in Slovakia (1999-2003)
	Sri Lankan Tamils in Sri Lanka (2001-2003)
	Jurassiens in Switzerland (1985-2003)
	Aboriginal Taiwanese in Taiwan (1992-2003)
	Afro-Americans in Venezuela (1985-2003)
	Indigenous Peoples in Venezuela (1985-2003)
Type 3: PAR-SMD	Type 4: PRE-SMD
Chittagong Hill Tribes in Bangladesh (1991-2003)	*Turks in Bulgaria (1990)*

Type 3: PAR-SMD	Type 4: PRE-SMD
Poles in Belarus (1991-1994)	*Basques in France (1985; 1988-2003)*
San Bushmen in Botswana (1985-2003)	*Corsicans in France (1985; 1988-2003)*
Sardinians in Italy (1993-2003)	*Poles in Lithuania (1991-2003)*
South Tyroleans in Italy (1993-2003)	*Albanians in Macedonia (1993-2000)*
Bougainvilleans in Papua New Guinea (1985-2003)	*Roma in Macedonia(1993-2000)*
	Serbs in Macedonia(1993-2000)
	Mayans in Mexico (1997-2003)
	Zapotecs in Mexico (1997-2003)
	Igorots in Philippines (1987-2003)
	Moros in Philippines (1987-2003)
	Avars in Russia (1992; 2000-2003)
	Buryat in Russia (1992; 2000-2003)
	Chechens in Russia (1992; 2000-2003)
	Ingushes in Russia (1992; 2000-2003)
	Karachays in Russia (1992; 2000-2003)
	Kumyks in Russia (1992; 2000-2003)
	Lezghins in Russia (1992; 2000-2003)
	Tatars in Russia (1992; 2000-2003)
	Tuvinians in Russia (1992; 2000-2003)
	Yakut in Russia (1992; 2000-2003)
	Honamese in South Korea (1988-2003)
	Crimean Russians in Ukraine (1991-2003)
	Crimean Tatars in Ukraine (1991-2003)
	Russians in Ukraine (1991-2003)
	Hispanics in USA (1985-2003)
	Indigenous Peoples in USA (1985-2003)

Concentrated Groups Facing Multiple Ethnic Others

Type 5: PAR-PR	Type 6: PRE-PR
Coloreds in South Africa (1994-2003)	*Indigenous Highland Peoples in Bolivia (1985-2003)*
Xhosa in South Africa (1994-2003)	*Indigenous Lowland Peoples in Bolivia (1985-2003)*
Zulus in South Africa (1994-2003)	*Afro-Americans in Ecuador (1985-2003)*
Malay-Muslims in Thailand (1992-1996)	*Indigenous Highland Peoples in Ecuador (1985-2003)*
Northern Hill Tribes in Thailand (1992-1996)	*Indigenous Lowland Peoples in Ecuador (1985-2003)*
Croats in Yugoslavia (2001-2003)	*Acehnese in Indonesia (1999-2003)*

Type 5: PAR-PR	Type 6: PRE-PR
Hungarians in Yugoslavia (2001-2003)	*East Timorese in Indonesia (1999-2003)*
Kosovo Albanians in Yugoslavia (2001-2003)	*Papuans in Indonesia (1999-2003)*
Sandzak Muslims in Yugoslavia (2001-2003)	*Merina in Madagascar (1992-1997)*
	Basters in Namibia (1990-2003)
	East Caprivians in Namibia (1990-2003)
	San Bushmen in Namibia (1990-2003)
	Tuareg in Niger (1992-1995)
	Afro-Americans in Peru (1985-91; 2001-03)
	Indigenous Highland Peoples in Peru (1985-91;2001-03)
	Indigenous Lowland Peoples in Peru (1985-91;2001-03)

Type 7: PAR-SMD	Type 8: PRE-SMD
Quebecois in Canada (1985-2003)	*Ashanti in Ghana (2001-2003)*
Assamese in India (1985-2003)	*Ewe in Ghana (2001-2003)*
Bodos in India (1985-2003)	*Mossi-Dagomba in Ghana (2001-2003)*
Kashmiris in India (1985-2003)	*Kalenjins in Kenya (2002-2003)*
Mizos in India (1985-2003)	*Kikuyu in Kenya (2002-2003)*
Nagas in India (1985-2003)	*Kisii in Kenya (2002-2003)*
Scheduled Tribes in India (1985-2003)	*Luhya in Kenya (2002-2003)*
Sikhs in India (1985-2003)	*Luo in Kenya (2002-2003)*
Tripuras in India (1985-2003)	*Maasais in Kenya (2002-2003)*
Baluchis in Pakistan (1988-1998)	*Somalis in Kenya (2002-2003)*
Hindus in Pakistan (1988-1998)	*Merina in Madagascar (1998-2003)*
Pashtuns in Pakistan (1988-1998)	*Tuareg in Mali (1992-2003)*
Sindhis in Pakistan (1988-1998)	*Diolas in Casamance, Senegal (2000-2003)*
Coloreds in South Africa (1992-1993)	*Bemebe in Zambia (1991-1995)*
Xhosa in South Africa (1992-1993)	*Lozi in Zambia (1991-1995)*
Zulus in South Africa (1992-1993)	
Darfur Black Muslims in Sudan (1986-1988)	
Nuba in Sudan (1986-1988)	
Type 7: PAR-SMD	
Southerners in Sudan (1986-1988)	
Malay-Muslims in Thailand (1997-2003)	
Northern Hill Tribes in Thailand (1997-2003)	

Dispersed Groups Facing One Rival Group	
Type 9: PAR-PR	Type 10: PRE-PR
Roma in Czech Republic (1993-2003)	*Jews in Argentina (1985-2003)*
Turks in Germany (1990-2003)	*Roma in Bulgaria (1991-2003)*
Roma in Greece (1985-2003)	*Indigenous Peoples in Chile (1989-2003)*
Roma in Italy (1985-1992)	*Roma in Croatia (2000-2003)*
Koreans in Japan (1985-1993)	*Muslims in France (1986-1987)*
Russians in Latvia (1991-2003)	*Roma in France (1986-1987)*
Maori in New Zealand (1993-2003)	*Afro-Caribbeans in Panama (1989-2003)*
Roma in Slovakia (1993-1998)	*Chinese in Panama (1989-2003)*
Type 9: PAR-PR	Type 10: PRE-PR
Roma in Spain (1985-2003)	*Indigenous Peoples in Paraguay (1992-2003)*
	Magyars in Romania (1996-2003)
	Roma in Romania (1996-2003)
	Roma in Slovakia (1999-2003)
	Indian Tamils in Sri Lanka (2001-2003)
	Foreign Workers in Switzerland (1985-2003)
	Mainland Chinese in Taiwan (1992-2003)
	Taiwanese in Taiwan (1992-2003)
Type 11: PAR-SMD	Type 12: PRE-SMD
Aborigines in Australia (1985-2003)	*Roma in Bulgaria (1990)*
Biharis in Bangladesh (1991-2003)	*Muslims in France (1985; 1988-2003)*
Hindus in Bangladesh (1991-2003)	*Roma in France (1985; 1988-2003)*
Russians in Belarus (1991-1994)	*Russians in Lithuania (1991-2003)*
East Indians in Fiji (1985-86; 1999)	*Other Indigenous Peoples in Mexico (1997-2003)*
Fijians in Fiji (1985-86; 1999)	*Roma in Russia (1992; 2000-2003)*
Roma in Hungary (1990-2003)	*African-Americans in USA (1985-2003)*
Roma in Italy (1993-2003)	*Native Hawaiians in USA (1985-2003)*
Koreans in Japan (1994-2003)	
Maori in New Zealand (1985-1992)	
Afro-Caribbeans in UK (1985-2003)	
Asians in UK (1985-2003)	
Catholics in UK (1985-2003)	
Scots in UK (1985-2003)	

Dispersed Groups Facing Multiple Ethnic Others	
Type 13: PAR-PR	Type 14: PRE-PR
Africans in Guyana (1992-2003)	*Chinese in Indonesia (1999-2003)*
East Indians in Guyana (1992-2003)	*Europeans in Namibia (1990-2003)*
Asians in South Africa (1994-2003)	
Europeans in South Africa (1994-2003)	
Chinese in Thailand (1992-1996)	
Roma in Yugoslavia (2001-2003)	
Type 15: PAR-SMD	Type 16: PRE-SMD
French Canadians in Canada (1985-2003)	NA
Indigenous Peoples in Canada (1985-2003)	
Muslims in India (1985-2003)	
Ahmadis in Pakistan (1988-1998)	
Mohajirs in Pakistan (1988-1998)	
Asians in South Africa (1992-1993)	
Europeans in South Africa (1992-1993)	
Chinese in Thailand (1997-2003)	

Note: PAR, PRE, PR, and SMD stand for parliamentary systems, presidential systems, proportional representation systems, and single-member-district systems, respectively. The category of presidential systems includes both presidential and semi-presidential systems while that of SMD systems includes all the non-PR systems.

Appendix C: Cases and Key Variables

Country	Groups	Period*	Governmental Structure	Electoral System	Distribution	Fractionalization		
						1	2	3
Albania	Greeks	2002-2003	Parliamentary	PR	Concentrated (3)	.22	.10	.10
Argentina	Indigenous Peoples	1985-2003	Presidential	PR	Concentrated (3)	.26	.26	.41
Argentina	Jews	1985-2003	Presidential	PR	Dispersed (1)	.26	.26	.41
Australia	Aborigines	1985-2003	Parliamentary	SMD	Dispersed (0)	.09	.15	.32
Bangladesh	Biharis	1991-2003	Parliamentary	SMD	Dispersed (1)	.05	.22	.07
Bangladesh	Chittagong Hill Tribes	1991-2003	Parliamentary	SMD	Concentrated (3)	.05	.22	.07
Bangladesh	Hindus	1991-2003	Parliamentary	SMD	Dispersed (0)	.05	.22	.07
Belarus	Poles	1991-1994	Parliamentary	SMD	Concentrated (2)	.32	.37	.37
Belarus	Russians	1991-1994	Parliamentary	SMD	Dispersed (0)	.32	.37	.37
Bolivia	Indigenous Highland Peoples	1985-2003	Presidential	PR	Concentrated (3)	.74	.74	.71
Bolivia	Indigenous Lowland Peoples	1985-2003	Presidential	PR	Concentrated (3)	.74	.74	.71
Botswana	San Bushmen	1985-2003	Parliamentary	SMD	Concentrated (3)	.41	.35	.48
Brazil	Afro-Brazilians	1985-2003	Presidential	PR	Concentrated (3)	.54	.55	.64
Brazil	Amazonian Indians (Indigenous Lowland Peoples)	1985-2003	Presidential	PR	Concentrated (3)	.54	.55	.64
Bulgaria	Roma	1990 1991-2003	Semipresidential	SMD PR	Dispersed (0)	.42	.30	.31
Bulgaria	Turks	1990 1991-2003	Semipresidential	SMD PR	Concentrated (2)	.42	.30	.31
Canada	French Canadians	1985-2003	Parliamentary	SMD	Dispersed (0)	.71	.60	.77

Country	Groups	Period*	Governmental Structure	Electoral System	Distribution	Fractionalization		
						1	2	3
Canada	Indigenous Peoples	1985-2003	Parliamentary	SMD	Dispersed (0)	.71	.60	.77
Canada	Quebecois	1985-2003	Parliamentary	SMD	Concentrated (3)	.71	.60	.77
Chile	Indigenous Peoples	1989-2003	Presidential	PR	Dispersed (1)	.19	.50	.43
Colombia	Afro-Americans	1985-2003	Presidential	PR	Concentrated (3)	.60	.66	.67
Colombia	Indigenous Peoples	1985-2003	Presidential	PR	Concentrated (3)	.60	.66	.67
Costa Rica	Antillean Blacks	1985-2003	Presidential	PR	Concentrated (3)	.24	.24	.24
Croatia	Roma	2000-2003	Semipresidential	PR	Dispersed (0)	.37	.38	.38
Croatia	Serbs	2000-2003	Semipresidential	PR	Concentrated (3)	.37	.38	.38
Czech Republic	Roma	1993-2003	Parliamentary	PR	Dispersed (0)	.32	.32	.32
Czech Republic	Slovaks	1993-2003	Parliamentary	PR	Concentrated (3)	.32	.32	.32
Dominican Republic	Afro-Americans	1985-2003	Presidential	PR	Concentrated (3)	.43	.39	.46
Ecuador	Afro-Americans	1985-2003	Presidential	PR	Concentrated (3)	.66	.66	.66
Ecuador	Indigenous Highland Peoples	1985-2003	Presidential	PR	Concentrated (3)	.66	.66	.66
Ecuador	Indigenous Lowland Peoples	1985-2003	Presidential	PR	Concentrated (3)	.66	.66	.66
El Salvador	Indigenous Peoples	1985-2003	Presidential	PR	Concentrated (3)	.20	.20	.16
Estonia	Russians	1991-2003	Parliamentary	PR	Concentrated (2)	.51	.51	.51
Fiji	East Indians	1985-1986 and 1999	Parliamentary	SMD	Dispersed (0)	.55	.57	.56
Fiji	Fijians	1985-1986 and 1999	Parliamentary	SMD	Dispersed (0)	.55	.57	.56

Country	Groups	Period*	Governmental Structure	Electoral System	Distribution	Fractionalization		
						1	2	3
France	Basques	1985	Semipresidential	SMD	Concentrated (3)	.10	.27	.33
		1986-1987		PR				
		1988-2003		SMD				
France	Corsicans	1985	Semipresidential	SMD	Concentrated (2)	.10	.27	.33
		1986-1987		PR				
		1988-2003		SMD				
France	Muslims	1985	Semipresidential	SMD	Dispersed (1)	.10	.27	.33
		1986-1987		PR				
		1988-2003		SMD				
France	Roma	1985	Semipresidential	SMD	Dispersed (0)	.10	.27	.33
		1986-1987		PR				
		1988-2003		SMD				
Germany	Turks	1990-2003	Parliamentary	PR	Dispersed (1)	.17	.10	.12
Ghana	Ashanti	2001-2003	Presidential	SMD	Concentrated (3)	.67	.85	.73
Ghana	Ewe	2001-2003	Presidential	SMD	Concentrated (3)	.67	.85	.73
Ghana	Mossi-Dagomba	2001-2003	Presidential	SMD	Concentrated (3)	.67	.85	.73
Greece	Muslims (Turks)	1985-2003	Parliamentary	PR	Concentrated (3)	.16	.06	.10
Greece	Roma	1985-2003	Parliamentary	PR	Dispersed (0)	.16	.06	.10
Guatemala	Indigenous Peoples	1996-2003	Presidential	PR	Concentrated (2)	.51	.49	.52
Guyana	Africans	1992-2003	Parliamentary	PR	Dispersed (1)	.62	.62	.63

Country	Groups	Period*	Governmental Structure	Electoral System	Distribution	Fractionalization		
						1	2	3
Guyana	East Indians	1992-2003	Parliamentary	PR	Dispersed (0)	.62	.62	.63
Honduras	Black Karibs (Garifuna)	1989-2003	Presidential	PR	Concentrated (3)	.19	.19	.25
Honduras	Indigenous Peoples	1989-2003	Presidential	PR	Concentrated (3)	.19	.19	.25
Hungary	Roma	1990-2003	Parliamentary	SMD	Dispersed (0)	.15	.19	.17
India	Assamese	1985-2003	Parliamentary	SMD	Concentrated (3)	.70	.81	.90
India	Bodos	1985-2003	Parliamentary	SMD	Concentrated (2)	.70	.81	.90
India	Kashmiris	1985-2003	Parliamentary	SMD	Concentrated (3)	.70	.81	.90
India	Mizos	1985-2003	Parliamentary	SMD	Concentrated (3)	.70	.81	.90
India	Muslims	1985-2003	Parliamentary	SMD	Dispersed (0)	.70	.81	.90
India	Nagas	1985-2003	Parliamentary	SMD	Concentrated (3)	.70	.81	.90
India	Scheduled Tribes	1985-2003	Parliamentary	SMD	Concentrated (2)	.70	.81	.90
India	Sikhs	1985-2003	Parliamentary	SMD	Concentrated (2)	.70	.81	.90
India	Tripuras	1985-2003	Parliamentary	SMD	Concentrated (3)	.70	.81	.90
Indonesia	Acehnese	1999-2003	Presidential	PR	Concentrated (3)	.74	.77	.79
Indonesia	Chinese	1999-2003	Presidential	PR	Dispersed (1)	.74	.77	.79
Indonesia	East Timorese	1999-2003	Presidential	PR	Concentrated (3)	.74	.77	.79
Indonesia	Papuans	1999-2003	Presidential	PR	Concentrated (3)	.74	.77	.79
Israel	Arabs	1985-1991	Parliamentary	PR	Concentrated (2)	.34	.53	.29
		1992-2000	Semipresidential					
		2001-2003	Parliamentary					

Country	Groups	Period*	Governmental Structure	Electoral System	Distribution	Fractionalization		
						1	2	3
Israel	Palestinians	1985-1991	Parliamentary	PR	Concentrated (3)	.34	.53	.29
		1992-2000	Semipresidential					
		2001-2003	Parliamentary					
Italy	Roma	1985-1992	Parliamentary	PR	Dispersed (0)	.11	.04	.08
		1993-2003		SMD				
Italy	Sardinians	1985-1992	Parliamentary	PR	Concentrated (3)	.11	.04	.08
		1993-2003		SMD				
Italy	South Tyroleans	1985-1992	Parliamentary	PR	Concentrated (3)	.11	.04	.08
		1993-2003		SMD				
Japan	Koreans	1985-1993	Parliamentary	PR	Dispersed (1)	.01	.01	.03
		1994-2003		SMD				
Kenya	Kalenjins	2002-2003	presidential	SMD	Concentrated (3)	.86	.85	.90
Kenya	Kikuyu	2002-2003	presidential	SMD	Concentrated (3)	.86	.85	.90
Kenya	Kisii	2002-2003	presidential	SMD	Concentrated (3)	.86	.85	.90
Kenya	Luhya	2002-2003	presidential	SMD	Concentrated (3)	.86	.85	.90
Kenya	Luo	2002-2003	presidential	SMD	Concentrated (3)	.86	.85	.90
Kenya	Maasais	2002-2003	presidential	SMD	Concentrated (2)	.86	.85	.90
Kenya	Somalis	2002-2003	presidential	SMD	Concentrated (3)	.86	.85	.90
Latvia	Russians	1991-2003	Parliamentary	PR	Dispersed (0)	.59	.59	.59
Lithuania	Poles	1991-2003	Semipresidential	SMD	Concentrated (2)	.32	.32	.34

Country	Groups	Period*	Governmental Structure	Electoral System	Distribution	Fractionalization		
						1	2	3
Lithuania	Russians	1991-2003	Semipresidential	SMD	Dispersed (0)	.32	.32	.34
Macedonia	Albanians	1993-2000	Semipresidential	SMD	Concentrated (2)	.50	.54	.54
		2001-2003		PR				
Macedonia	Roma	1993-2000	Semipresidential	SMD	Concentrated (2)	.50	.54	.54
		2001-2003		PR				
Macedonia	Serbs	1993-2000	Semipresidential	SMD	Concentrated (2)	.50	.54	.54
		2001-2003		PR				
Madagascar	Merina	1992-1997	Semipresidential	PR	Concentrated (2)	.88	.86	.87
		1998-2003		SMD				
Mali	Tuareg	1992-2003	Semipresidential	SMD	Concentrated (3)	.69	.75	.86
Mexico	Mayans	1997-2003	Presidential	SMD	Concentrated (2)	.54	.59	.59
Mexico	Other Indigenous Peoples	1997-2003	Presidential	SMD	Dispersed (0)	.54	.54	.59
Mexico	Zapotecs	1997-2003	Presidential	SMD	Concentrated (2)	.54	.54	.59
Moldova	Gagauz	1993-1999	Semipresidential	PR	Concentrated (3)	.55	.51	.51
		2000-2003	Parliamentary					
Moldova	Slavs (Russians and Ukrainians)	1993-1999	Semipresidential	PR	Concentrated (2)	.55	.51	.51
		2000-2003	Parliamentary					
Namibia	Basters	1990-2003	Semipresidential	PR	Concentrated (3)	.63	.72	.78
Namibia	East Caprivians	1990-2003	Semipresidential	PR	Concentrated (3)	.63	.72	.78
Namibia	Europeans	1990-2003	Semipresidential	PR	Dispersed (1)	.63	.72	.78
Namibia	San Bushmen	1990-2003	Semipresidential	PR	Concentrated (3)	.63	.72	.78

Country	Groups	Period*	Governmental Structure	Electoral System	Distribution	Fractionalization		
						1	2	3
New Zealand	Maori	1985-1992 1993-2003	Parliamentary	SMD PR	Dispersed (1)	.40	.36	.20
Nicaragua	Indigenous Peoples	1990-2003	Presidential	PR	Concentrated (3)	.48	.40	.50
Niger	Tuareg	1992-1995	Semipresidential	PR	Concentrated (2)	.65	.64	.72
Pakistan	Ahmadis	1988-1998	Parliamentary	SMD	Dispersed (0)	.71	.53	.61
Pakistan	Baluchis	1988-1998	Parliamentary	SMD	Concentrated (2)	.71	.53	.61
Pakistan	Hindus	1988-1998	Parliamentary	SMD	Concentrated (3)	.71	.53	.61
Pakistan	Mohajirs	1988-1998	Parliamentary	SMD	Dispersed (1)	.71	.53	.61
Pakistan	Pashtuns	1988-1998	Parliamentary	SMD	Concentrated (3)	.71	.53	.61
Pakistan	Sindhis	1988-1998	Parliamentary	SMD	Concentrated (3)	.71	.53	.61
Panama	Afro-Caribbeans	1989-2003	Presidential	PR	Dispersed (1)	.55	.51	.60
Panama	Chinese	1989-2003	Presidential	PR	Dispersed (1)	.55	.51	.60
Panama	Indigenous Peoples	1989-2003	Presidential	PR	Concentrated (3)	.55	.51	.60
Papua New Guinea	Bougainvilleans	1985-2003	Parliamentary	SMD	Concentrated (3)	.27	1.0	.35
Paraguay	Indigenous Peoples	1992-2003	Presidential	PR	Dispersed (0)	.17	.13	.17
Peru	Afro-Americans	1985-1991 and 2001-2003	Semipresidential	PR	Concentrated (3)	.66	.64	.66
Peru	Indigenous Highland Peoples	1985-1991 and 2001-2003	Semipresidential	PR	Concentrated (2)	.66	.64	.66

Country	Groups	Period*	Governmental Structure	Electoral System	Distribution	Fractionalization		
						1	2	3
Peru	Indigenous Lowland Peoples	1985-1991 and 2001-2003	Semipresidential	PR	Concentrated (3)	.66	.64	.66
Philippine	Igorots (Cordillera Peoples)	1987-2003	Presidential	SMD	Concentrated (3)	.24	.16	.84
Philippine	Moros (Muslims)	1987-2003	Presidential	SMD	Concentrated (2)	.24	.16	.84
Romania	Magyars (Hungarians)	1996-2003	Semipresidential	PR	Dispersed (1)	.31	.30	.29
Romania	Roma	1996-2003	Semipresidential	PR	Dispersed (0)	.31	.30	.29
Russia	Avars	1992 and 2000-2003	Semipresidential	SMD	Concentrated (2)	.25	.33	.33
Russia	Buryat	1992 and 2000-2003	Semipresidential	SMD	Concentrated (2)	.25	.33	.33
Russia	Chechens	1992 and 2000-2003	Semipresidential	SMD	Concentrated (3)	.25	.33	.33
Russia	Ingushes	1992 and 2000-2003	Semipresidential	SMD	Concentrated (3)	.25	.33	.33
Russia	Karachays	1992 and 2000-2003	Semipresidential	SMD	Concentrated (2)	.25	.33	.33
Russia	Kumyks	1992 and 2000-2003	Semipresidential	SMD	Concentrated (3)	.25	.33	.33
Russia	Lezghins	1992 and 2000-2003	Semipresidential	SMD	Concentrated (3)	.25	.33	.33

Country	Groups	Period*	Governmental Structure	Electoral System	Distribution	Fractionalization		
						1	2	3
Russia	Roma	1992 and 2000-2003	Semipresidential	SMD	Dispersed (0)	.25	.33	.33
Russia	Tatars	1992 and 2000-2003	Semipresidential	SMD	Concentrated (2)	.25	.33	.33
Russia	Tuvinians	1992 and 2000-2003	Semipresidential	SMD	Concentrated (3)	.25	.33	.33
Russia	Yakut	1992 and 2000-2003	Semipresidential	SMD	Concentrated (3)	.25	.33	.33
Senegal	Diolas in Casamance	2000-2003	Semipresidential	SMD	Concentrated (3)	.69	.73	.81
Slovakia	Hungarians	1993-1998 1999-2003	Parliamentary Semipresidential	PR	Concentrated (3)	.25	.33	.33
Slovakia	Roma	1993-1998 1999-2003	Parliamentary Semipresidential	PR	Dispersed (0)	.25	.33	.33
South Africa	Asians	1992-1993 1994-2003	Parliamentary	SMD PR	Dispersed (1)	.75	.88	.88
South Africa	Coloreds	1992-1993 1994-2003	Parliamentary	SMD PR	Concentrated (3)	.75	.88	.88
South Africa	Europeans	1992-1993 1994-2003	Parliamentary	SMD PR	Dispersed (0)	.75	.88	.88
South Africa	Xhosa	1992-1993 1994-2003	Parliamentary	SMD PR	Concentrated (2)	.75	.88	.88

Country	Groups	Period*	Governmental Structure	Electoral System	Distribution	Fractionalization		
						1	2	3
South Africa	Zulus	1992-1993	Parliamentary	SMD	Concentrated (2)	.75	.88	.88
		1994-2003		PR				
South Korea	Honamese	1988-2003	Presidential	SMD	Concentrated (2)	.00	.00	.00
Spain	Basques	1985-2003	Parliamentary	PR	Concentrated (3)	.42	.50	.44
Spain	Catalans	1985-2003	Parliamentary	PR	Concentrated (3)	.42	.50	.44
Spain	Roma	1985-2003	Parliamentary	PR	Dispersed (0)	.42	.50	.44
Sri Lanka	Indian Tamils	2001-2003	Semipresidential	PR	Dispersed (1)	.42	.43	.71
Sri Lanka	Sri Lankan Tamils	2001-2003	Semipresidential	PR	Concentrated (3)	.42	.43	.71
Sudan	Nuba	1986-1988	Parliamentary	SMD	Concentrated (3)	.71	.71	.71
Sudan	Southerners	1986-1988	Parliamentary	SMD	Concentrated (3)	.71	.71	.71
Switzerland	Foreign Workers	1985-2003	Presidential	PR	Dispersed (0)	.53	.58	.56
Switzerland	Jurasiens	1985-2003	Presidential	PR	Concentrated (3)	.53	.58	.56
Taiwan	Aboriginal Taiwanese	1992-1996	Presidential	PR	Concentrated (2)	.27	.27	.27
		1997-2003	Semipresidential					
Taiwan	Mainland Chinese	1992-1996	Presidential	PR	Dispersed (1)	.27	.27	.27
		1997-2003	Semipresidential					
Taiwan	Taiwanese	1992-1996	Presidential	PR	Dispersed (0)	.27	.27	.27
		1997-2003	Semipresidential					
Thailand	Chinese	1992-1996	Parliamentary	PR	Dispersed (1)	.63	.43	.63
		1997-2003		SMD				
Thailand	Malay-Muslims	1992-1996	Parliamentary	PR	Concentrated (3)	.63	.43	.63

Country	Groups	Period*	Governmental Structure	Electoral System	Distribution	Fractionalization		
						1	2	3
		1997-2003		SMD				
Thailand	Northern Hill Tribes	1992-1996	Parliamentary	PR	Concentrated (2)	.63	.43	.63
		1997-2003		SMD				
Turkey	Kurds	1985-2003	Parliamentary	PR	Concentrated (3)	.32	.30	.19
Ukraine	Crimean Russians	1991-2003	Semipresidential	SMD	Concentrated (3)	.47	.42	.42
Ukraine	Crimean Tatars	1991-2003	Semipresidential	SMD	Concentrated (3)	.47	.42	.42
Ukraine	Russians	1991-2003	Semipresidential	SMD	Concentrated (2)	.47	.42	.42
United Kingdom	Afro-Caribbeans	1985-2003	Parliamentary	SMD	Dispersed (1)	.12	.32	.39
United Kingdom	Asians	1985-2003	Parliamentary	SMD	Dispersed (1)	.12	.32	.39
United Kingdom	Catholics	1985-2003	Parliamentary	SMD	Dispersed (1)	.12	.32	.39
United Kingdom	Scots	1985-2003	Parliamentary	SMD	Dispersed (1)	.12	.32	.39
United States	African-Americans	1985-2003	Presidential	SMD	Dispersed (0)	.49	.49	.58
United States	Hispanics	1985-2003	Presidential	SMD	Concentrated (2)	.49	.49	.58
United States	Indigenous Peoples	1985-2003	Presidential	SMD	Concentrated (3)	.49	.49	.58
United States	Native Hawaiians	1985-2003	Presidential	SMD	Dispersed (0)	.49	.49	.58
Venezuela	Afro-Americans	1985-2003	Presidential	PR	Concentrated (2)	.50	.48	.54
Venezuela	Indigenous Peoples	1985-2003	Presidential	PR	Concentrated (3)	.50	.48	.54
Yugoslavia	Croats	2001-2003	Parliamentary	PR	Concentrated (2)	.81	.80	.78
Yugoslavia	Hungarians	2001-2003	Parliamentary	PR	Concentrated (3)	.81	.80	.78
Yugoslavia	Kosovo Albanians	2001-2003	Parliamentary	PR	Concentrated (2)	.81	.80	.78

Country	Groups	Period*	Governmental Structure	Electoral System	Distribution	Fractionalization		
						1	2	3
Yugoslavia	Roma	2001-2003	Parliamentary	PR	Dispersed (0)	.81	.80	.78
Yugoslavia	Sandzak Muslims	2001-2003	Parliamentary	PR	Concentrated (3)	.81	.80	.78
Zambia	Bemebe	1991-1995	Presidential	SMD	Concentrated (2)	.78	.73	.91
Zambia	Lozi (Barotse)	1991-1995	Presidential	SMD	Concentrated (3)	.78	.73	.91

*Period refers to the years the country received a score of 6 on Polity IV's Polity score, with 1975 and 2003 as the earliest and latest years, respectively.

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VITA

Feng-yu Lee was born in Taipei, Taiwan on March 23, 1974, the daughter of Lin-shun Lee and Chun-xiu You. In 1994, she entered the National Chengchi University in Taipei. She received the degree of Bachelor of Arts from the National Chengchi University in June 1997. In September 1997, she entered the department of Political Science of the National Taiwan University in Taipei. After receiving the degree of Master of Arts from the National Taiwan University, in September 2001, she entered the Graduate School of the University of Texas at Austin.

Permanent Address:
3F, 64 Academia Road, Sec. 2, Nankang, Taipei 115, Taiwan

This dissertation was typed by the author.